



UNIVERSITY OF CALIFORNIA
MUSEUM OF VERTEBRATE ZOOLOGY

UNIVERSITY OF CALIFORNIA
MUSEUM OF VERTEBRATE ZOOLOGY

Vol. 260

Digitized by the Internet Archive
in 2017 with funding from
CLIR

<https://archive.org/details/fieldnotesv147000mars>

Marshall, J. T., Jr.
1938-1940, 1941

Catalog of Specimens, complete for Jan. 1939 - Dec. 1940
" " " " " "
to Dec. 1941

Summer field notes: *Otus flammeolus* } 1938
Otus trichopsis } 1939

Arizona: Coconino Co. May-June, 1939

Washington July - August, 1939

Tulare Co; Calif.: Whitaker Forest November 1939

Marshall, J. T., Jr.

Catalog of Specimens, complete for
Jan. 3, 1939, to Dec. 31, 1940

#590 — 1147

Marshall, 1939

38.

Catalog

3 mi. N Seligman, 5700 ft.,
Coconino Co., Arizona

May 23, 1939

650 ♂ poorwill' full stomach: moths

May 26, 1939

651 ♂ vireo

3 mi N Seligman, 6000 ft.,
Coconino County, Arizona

May 27, 1939

652 ♂ poorwill' full stomach: moths

653 ♂ poorwill' full stomach: moths

Top of Aubrey Cliffs, 6500 ft.,
15 mi NW Seligman, Coconino
Co., Ariz.

May 28, 1939

654 ♂ Empidonax

10 mi. N Ashfork, 6000 ft.,
Coconino Co., Ariz.

May 29, 1939

655 ♂ Otus asio full stom: Jerusalem Crickets
+ 1 deer mouse

May 30, 1939

656 ♂ Otus asio full stom: ⁶⁻⁸ Jerus. Crickets
+ deer mouse

Marshall, 1939

39.

Catalog

1 1/2 mi W Flagstaff, 7000 ft.,
Coconino Co., Arizona
9 PM June 1, 1939

657 ♂ *Otus flammeolus*
skin + body in alc. + stomach
contents!

2 AM June 2, 1939

658 ♂ *Otus flammeolus*
skin + body in alc. + stomach
contents.

Marshall, 1939

Catalog

4 mi N Patagonia, 4500 ft.,
Santa Cruz Co., Arizona

July 15, 1939

659 ♂ *Baeolophus*

660 ♂ Rufous - sparrow

661 Jay

soiled) ~~662 juv Jay~~

July 16, 1939

soiled) ~~663 juv Lucy Warbler~~

664 ♂ Red-eyed Cowbird iris red

665 ♂ *Myiarchus*

666 ♀ Poorwill

667 ♂ *Otus trichopsis*

July 17, 1939

668 ♂ *Myiarchus cinerascens*soiled) ~~669 ♂ Cassin Kingbird~~670 ♂ *Pipilo*671 ♂ *Dryobates*

672 ♂ Thrasher iris yellow

5 mi E Flagstaff, Coconino Co., Arizona

July 18, 1939

↑ 673 ♂ imm *Falco sparverius* pickup
acc 5969

16 mi. N. Redding, Shasta Co., Calif.

July 24, 1939

674 ♂ *Otus flam asiaticus* - stomach full
lg. insects

7 mi. E & 5 mi. S Dixie, 4300 ft., Walla
Walla Co., Wash.

July 26, 1939

- 675 juv. *Hylocichla guttata* skull 1-layered 27g
676 ♀ *Regulus satrapa* 4.4g skull 1-layered
677 juv. Chestnut-backed Chickadee 9.5g
678-A ♂ juv. " " " 9.1g skull 1-layered
678-B Black-capped Chickadee alc.

Stayawhile Spring, 5150 ft., Blue Mts,
Columbia Co., Wash.

July 26, 1939

- 679 ♂ *Microtus* 190-65-25-9 62.0g
680 ♂ *Otus flammeolus* skin 12 o'clock
+ body skel
+ stomach contents

July 27, 1939

- 681 ♂ Canada Jay 78.8g.
682 ♂ *Dryobates borealis villosus*

July 28, 1939

- 683 ♂ skull 1-layered Hammond Flycatcher 11.3g
coll. by J. Chatterin

July 27, 1939

- 684 ♀ Canada Jay 65.5g.

Wildcat Spring, 2 mi. W Godman Spring
Ranger Station, Columbia Co., Wash.

July 28, 1939

- 685 ♂ *Eutamias* 205-95-32-17 45.5g.
686 ♂ *Peromyscus* 173-82-21-17 20.5g

Marshall, 1939

42.

Catalog

5,000⁺ft Blue Mts

9 mi NE Stayawhite Spring, Columbia Co., Wash

July 28, 1939

✓ 687 ♂ ⁷⁷⁷³⁹ *Otus flammeolus* skin + body skel + stom. cont. 5,000 ft. Blue Mts. - midnight

10 mi NE Stayawhite Spring, Columbia Co., Wash

✓ 688 ♂ ⁷⁷⁷⁴⁰ *Otus flammeolus* skin + body skel + stom. cont. 3 AM. 28th 52.8g.

1 mi. W Stayawhite Sp., 5300 ft., Columbia Co., Wash.

July 29, 1939

✓ 689 *Junco* 17.3g.

✓ 690 *Passerella iliaca schistacea* 37.8g

✓ 691 *Zonotrichia leucophrys gambeli* 23.5g.

July 28, 1939

[ER Hall # 5594] ♀ *Lazzy Lazonmycterus noctivagans* 92-36-8-15 9.8g.

July 29, 1939

✓ 692 imm Warbler (Calaveras) 8.2g.

5 mi NW Albee, ^{Blue Mts.} Umatilla Co., Ore

July 29, 1939 10:00 PM

✓ 693 ♂ *Otus flammeolus* 50.0g

NE edge Alkali Lake, 4200 ft., Lake Co., Ore.

July 30, 1939

✓ 694 ♂ *Phalaenoptilus nuttalli* 49.1g.

July 31, 1939

✓ 695 ♂ *Dipodomys microps* 263-154-41-12 54.0g

✓ 696 ♂ *Microdipodops* 154-84-24-9 13.5g

✓ 697 ♂ " 167-94-26-11 13.9g

✓ 698 ♀ " 144-77-24-10 14.5g

✓ 699 ♀ " 147-74-24-10 15.1g

2 mi. E. Vinton, ft., Plumas Co., Calif.
August 1, 1939

✓ 700 ♂ *Eutamias* 199-93-29-15 33.8g.

Marshall, 1939

43.

Catalog

Richmond, Contra Costa Co., Calif.

August 2

- 701 ♂ Thomomys coll. by Leon Horn
N side Strawberry Canyon, Berkeley, Alameda Co., Calif.

August 11

- 702 Coluber constrictor 1800 ft
Rock Spring, S. slope Mt. Tamalpais, Marin Co., Calif.

August 13

1 feather acc. 5933

703

- Cryptoglossus acadica coll. by J. M. & V. Menniker
Ariary, Oakland, Alameda Co., Calif.

October 4

Acc. 5965

704 ♀

- Columbigallina minuta coll. E. W. Gifford 31.6g.
Strawberry Canyon, 900 ft., Berkeley, Alameda Co., Calif.

October 7

acc. 5969

705 ♂

- Regulus satrapa skull 1-layer 5.8g
Mosswood Rd., Berkeley, Alameda Co., Calif.

October 10

706 ♂

- Passerella iliaca coll. by Mrs. Allen
brought in by Mrs. V. Miller 42.5g
Huichica Cr., 200 ft., 4 1/2 mi W, 2 3/4 mi S Napa, Napa Co., Calif.

"NAPA" hereafter defined as Junction of Napa Cr. & Napa R.

October 20

707 ♂? Ad

- Melospiza melodia shrubbery in yard - around lawn
very fat 23.0g.
708 ♂ Ad " " shrubbery in yard - under live oak
not fat 20.7g.

709 imm

- Melospiza melodia Baccharis beside slough (salt water)
not fat 17.8g.

710 imm

- Melospiza melodia Baccharis beside slough (salt water)
" " " 17.0g.

This means
6 1/4 mi.
downstream

W. Bank Napa R., 6 1/4 mi S Napa (mouth Napa Cr.), Napa Co., Calif.

Catalog

Co., Calif.

W side Napa R., 8 1/2 mi S, 2 1/2 mi W Napa (=mouth Napa Cr.) NapaOctober 20 tules along salt H₂O slough

711	♂ Ad	<u>Melospiza</u> <u>melodia</u>	not fat	18.5g
712	Imm	"	" "	18.8g
713	Imm	"	" "	17.9g
714	Imm	"	" "	16.6g
715	Imm	"	" "	18.2g
716	♂	tules visible skull roof "not yet dotted"	" "	17.8g

measured
downstream
southerlyE bank Napa R., 5 3/4 mi. S Napa (=mouth Napa Cr.) Napa Co., Calif.

717	♂ Ad	<u>Melospiza</u> <u>melodia</u>	not fat	19.6g.
718	♂ Ad	"	salt-water marsh tules, Salicornia	19.3g.
719	♀ Ad	"	Baccharis weeds	19.4g.
720	♀ Ad	"	" "	17.0g.

Huichica Cr., 200 ft., 4 1/2 mi. W, 2 3/4 mi S Napa, Napa Co., Calif.

721	♂ Ad	<u>Sayornis</u> <u>saya</u>	(measured downstream)	22.0g.
-----	------	-----------------------------	-----------------------	--------

E bank Napa R., 5 3/4 mi. S Napa (=mouth Napa Cr.), Napa Co., Calif.October 21

722	Ad ♂	<u>Melospiza</u> <u>melodia</u>	Salicornia not fat caught in mouse trap (oats)	17.0g
723	♂ Ad	"	Salicornia caught in mouse trap (oats)	17.9g

Huichica Cr., 200 ft., 4 1/2 mi W, 2 3/4 mi S Napa, Napa Co., Calif.

724	♂ Imm	<u>Melospiza</u> <u>melodia</u>	shrubby around yard. not fat	20.0g.
-----	-------	---------------------------------	---------------------------------	--------

100 ft.,
5 mi SW Napa, Napa Co., Calif.

725	♂	<u>Sayornis</u> <u>saya</u>		22.6g.
-----	---	-----------------------------	--	--------

mouth Huichica Cr., 3 1/2 mi W 6 mi S Napa (=mouth Napa Cr.) Napa Co.

726	ad	<u>Melospiza</u> <u>melodia</u>	Wild Parsley not all fat edge salt marshes	19.0g
727	♀ ad	"	Wild Parsley	20.0g.
728	♂ Imm.	"	Baccharis	19.4g.

Marshall, Joe 1939

45.

Catalog

Hirichia Cr., 200 ft., 4 1/2 mi W 2 3/4 mi S Napa, Napa Co., Calif.

October 21

729 ♂ Otus asio 138.5g

W side Napa R., 8 1/2 mi S, 2 1/2 mi W Napa (mouth Napa Cr.), Napa Co., Calif.

October 20

730 Imm. (skull 1 layer) Carpodacus mexicanus

W end Life Science Bldg., U.C. Berkeley, Alameda Co., Calif.

October 26

acc. 5984

731 ♂ Speotyto cunicularia fat 170g

aviary, Piedmont, Alameda Co., Calif.

October 28, 1939

acc. 5984

732 ♂ Geotrygon versicolor coll. M.R. Blankenship 160g. ^{kidneys minute}

Alcorn ranch, 4 mi W Fallon, 4000 ft., Churchill Co., Nevada

Oct November 14

acc 6002

733 ♂ Colaptes cafer

734 Imm Melospiza melodia

735 ♂ Imm " "

736 Ad " "

coll. J. R. Alcorn
acc. 6002

November 13

737 ♂ Accipiter velox

L 738

" "

Hirichia Cr., 200 ft., 4 1/2 mi W 2 3/4 mi S Napa, Napa Co., Calif.

November 17

739 ♂ Phalaenoptilus nuttalli coll. W. Longhurst, 47.0g. ^{"same one" as before}

E bank Napa R., 5 3/4 mi S Napa (mouth Napa Cr.), Napa Co., Calif.

740 ♀ Asio flammeus coll. W. Longhurst

Catalog

Napa Slough, 6 1/2 mi SSW Napa (=mouth Napa Cr.), Napa Co. Calif.

November 19

741 ♀ Asio flammeus coll. W Longhurst

Alcorn ranch, 4 mi. W Fallon, 4000ft., Churchill Co., Nevada

November 22

acc. 6014

742 Imm
acc. 6014
743

Melospiza melodia } coll. J. A. Alcorn 20.5g
" " } 22.3g

Keith Street, Berkeley, Alameda Co., Calif.

November 21

acc. 6016

744 Cranium opaque, but not dotted Passerella iliaca coll. E. M. Eakin 24.5g.
found dead in Eakin's yard.

San Pablo Creek, Contra Costa Co., Calif. (4 1/2 mi. from mouth)

December 14, 1939 (all for this day arranged in order from hills to San Pablo marsh)

745 Ad ♀ Melospiza melodia very fat 17g } ^{under} Buckeyes Oaks
746 Ad ♂ " " 18.3g } in willow thickets
747 Ad ♀ " " fat } and blackberry
vine tangles
along stream

San Pablo Creek, Contra Costa Co., Calif. (1 mi from mouth)

748 Ad ♂ Melospiza melodia 18.4g } foraging in leaves under Buckeyes
along stream } (might be one of above
3 or one of those
below. Due to loosening
of label.)

Wildcat Creek, San Pablo Contra Costa Co., Calif. (1 mi from mouth)

749 ? Melospiza melodia 18.0g foraging on ground in Wildcat Creek
near willows
750 ? " " 16.8g. willows & vine tangle at stream

Mouth San Pablo Creek, Contra Costa Co., Calif. (willows at mouth)

751 ♂ Melospiza melodia on weed field near willows
752 ♀ " " 15.2g. (at 1st cattails in creek)
753 Imm ♀ " "morphna 22.1g. (In willows) fat
754 Ad ♀ ? " " 20.0g. " "
755 ♂ " " 18.0g. " "
756 Ad ♀ " " 15.5g. " "
757 Ad ♂ " " 16.0g. " "

Marshall, 1939

47.

Catalog

Salt Marsh, San Pablo Marsh, Contra Costa Co., Calif. (at mouth of San Pablo Creek)

December 14, 1939

- 758 ♂ Melospiza melodia } weeds along start of 16.7g.
759 Ad ♂ " " } salt-H₂O slough 16.5g.
760 Ad ♂ " " } Baccharis at edge slough 18.5g.
761 Ad ♂ " " } 20.0g.
762 Im ♀? " " Tules near slough 19.0g.

1 mi. S Mulford Landing, 2 3/4 mi SSW San Leandro, Alameda Co., Calif.

December 27, 1939

- 763 ♂ Melospiza melodia } coll C. G. Sibley 17.0g.
764 ♀? " " } Tule marsh? " 18.0g.

L.S.D., U.C. Campus, Berkeley, Alameda Co., Calif.

- 765 ♂ Hylocichla guttata picked up by Miss Frances Carter 28.0g.
Napa Co., Calif.

December, 1939

- Skeleton
766 ♂ Phalacrocorax a. albociliatus W. Longhurst
University Farm, Davis, Yolo Co., Calif.

December 31, 1939

- 767 ♀ Colaptes auratus J.T. Emlen
McKay Radio Station, W coast opp. San Bruno) San Mateo Co.

January 17, 1940

- 768 Sayornis saya G. Bolander
Happy Valley, 2 mi. W Lafayette, Contra Costa Co., Calif.

January 19, 1940

- 769 ad Abo Lanius ludovicianus

Catalog

Isabel
 1/2 mi E Fleming Pt. Contra Costa Co., Calif.

(salt marsh, junction S.P.R.R. and rd. to Isabel Pt.)

February 24

Grindelia along sloughs

- 770 ♂ *Melospiza melodia* } pair coll J. Chatin ne RR crossing 20.5g
 771 ♀ " " } 17.0g.
 772 ♂ " " coll J. Chatin se of crossing 18.5g.
 773 ♂ " " se of crossing 19.7g.

W side El Cerrito Knoll, Alameda Co., Calif.

(salt marsh, w side S.P.R.R. tracks) Feb. 24

- 774 ♂ *Melospiza melodia* } on wire above Baccharis bush
 775 ♀ " " } pair 5 yds from Salicornia 8.0g.
 under Baccharis 17.0g.

(Hills SW) Richmond, Contra Costa Co., Calif.

March 1, 1940 (north-east slope opposite Richmond Yacht Harbor)

- 776 ♂ t. 9.4 *Melospiza melodia* singing in Baccharis above road 18g.
 777 ♂ t. 8 " " chasing another " " " " 20.5g.
 778 ♂ t. 6 " " " " " " " " 19.5g.

N.S. 257, 258, 259, 260 other 3 sea level all singing ♂♂
 (Four more taken by Ned Stone) in Baccharis & Wild Bury

(slough on south side) Richmond, Contra Costa Co., Calif.

- 779 ♂ ♀ *Melospiza m.* singing salicornia overy 5mm 17.6g.

- 780 ♀ av. 4.5 " " " Grindelia along slough

- 781 ♂ t. 8 " " " Grindelia along slough

(red stone 261, 262 singing in Baccharis at bridge) Stege, Contra Costa Co., Calif. (tule marsh at edge of bay)

- 782 ♂ *Melospiza melodia* t=8 tules in salt marsh singing

- 783 ♀ " " ov. 6 tules in salt marsh

Marsh between Stege & Isabel Pt., Contra Costa Co., Calif.

March 8

- 784 *Melospiza melodia* mate of 785 } foraging in Tules
 785 " " mate of 784 } farthest south in Grindelia near

Marshall, 1940

Catalog

Marsh between Stege & Isabel Pt. Contra Costa Co. Calif.

March 8, 1940

786 786 *Melospiza melodia* *Grindelia* at salt marsh
(near mouth San Pablo Cr.)
San Pablo Marsh, Contra Costa Co., Calif.

March 8, 1940

787 *Melospiza m.* } pair at edge of marsh in California
788 " " }
789 " " at edge marsh in sm. tree
790 " " }
791 " " }
792 " " } Mostly in California - a few in
793 " " } tiles
794 " " } salt marsh

San Pablo Creek, Contra Costa Co., Calif. ($\frac{1}{3}$ mi from mouth)

795 } pair " " willows
796 } " " "
797 " " "

Wilcat Creek, Contra Costa Co., Calif. (willows at mouth)

798 " "

Strawberry Canyon, Berkeley, Alameda Co., Calif.

March 16, 1940 hillside & Strawberry Pool. Blackberry tangles

799 ♂ *Melospiza melodia* 18.5g.

U.C. Campus, Berkeley, Alameda Co., Calif.

March 16, 1940 (Harland Hall)

800 ♂ *Melospiza melodia* 20.3g. shrubbery at edge lawn

2629 College Avenue, Berkeley, Alameda Co., Calif.

March 19

nest 801 Nest of *Psaltiriparus minimus* with 2 eggs
(from Miss Smith) nest in Joshua tree on parking (over)

Nest in the Joshua tree-like
member of the city family.

Cordylus constans Forst

Marshall, 1940

50.

Catalog

U.C. Campus, Berkeley, Alameda Co., Calif.

March 25

802 ♀ Melospiza melodia coll. Al Wolfson, ^{dried, starved} 12.5g.

March 27

803 ♂ t. 9 mm " " " " " " { at edge Eucalyptus grove 19.4g.

Coyote Creek, Santa Clara Co., Calif.

April 5

804 ♂ Melospiza melodia Brush pile at bank creek

805 ♂ " " willow " " "

806 ♀ " " Brush pile " " "

807 ♂ " " willows " " "

808 ♂ " " } orchard
809 ♂ " " } ^{edge of} orchard trees & willows
at edge creek

810 ♂ " " Brush pile at edge creek

811 ♂ " " " " " " "

812 ♀ " " " " " " "

813 ♂ " " " In orchard tree 75 yards from creek

814 ♀ " " " edge of orchard, 100 " " "

Winchua Cr., 200 ft. Napa Co., Calif.

April 7

815 ♂ Melospiza melodia ^{shrubbery in yard} coll. Bill Longhurst

W. end Island no. I, Solano Co., Calif.

April 7

816 ♂ Melospiza melodia } Baccharis & grindebra at
817 ♀ " " } salt marsh

Island no. I, 1 1/2 mi W Napa R. bridge, Solano Co. Calif.

818 ♂ Melospiza melodia ^{pure} Salicornia

Marshall, 1940

51.

Catalog

South Vallejo salt marsh, Solano Co., Calif.

April 7

- 819 ♂ melospiza melodia } Tules in salt
820 ♂ " " } marsh
821 ♀ " " }

Southampton Bay marsh, Solano Co., Calif.

- 822 ♂ melospiza melodia }
823 ♂ " " } Grindelia, Salicornia
824 ♀ " " } Tules - all
825 ♀ " " } salt marsh

Benicia Arsenal (salt marsh on S side), Solano Co., Calif.

- 826 ♂ melospiza melodia }
827 ♂ " " } all in Tules at
828 ♂ " " } edge Carquinez
straits

salt marsh mouth Sulphur Springs Valley, Solano Co., Calif.

- 829 ♂ Melospiza melodia } shrubbery along RR bank
830 ♂ " " } crossing Salicornia &
tule marshes. Tules in
ditch.

Lake Herman, Sulphur Springs Valley, Solano Co., Calif.

- 831 ♂ Melospiza melodia } Tules & shrubbery at
832 ♂ " " } entrance of stream into L.
Herman. Fresh-water.

UC. Campus, Berkeley, Alameda Co., Calif.

May 4

- 833 ♀ brood patch Carpodacus mexicanus brood patch
brain, & ovaries saved in borings for Goody.

Berkeley Aquatic Park, Alameda Co., Calif.

May 2, 1940

- 834 ♀ Gavia stellata

Marshall, 1940

834 May 2

Catalog

Elkbank Napa R., 5 3/4 S Napa, Napa Co. Calif.

May 5

acc 6218

835 skel Elanus leucurus picked up at foot
of oak nesting tree on 1st Ed. S Bull
Ed. wing 12" tail 7 1/2"

June Lake, Inyo Co., Calif.
April 25

acc 6219

836 ♂ Pandion skin + body skel.

brought to MVZ by Alton Hixson, who had
attempted to mount the skin. Found
shot by A. Attwood, Asst Game Warden,
& turned over to Gus Nordquist,
who gave the bird to Hixson.

May 12

acc 6223
skel

837

♂

Pipilo

maculatus

skeleton

Marshall, 1940

Catalog

1st Id. s Bull Id., Napa Co., Calif.

May 5

skel 835

Elanus leucurus

skel ^{picked up at foot of oak tree}
by Wm. Longhurst.

June Lake, Mono Co., Calif.

April 25

skin &
body skel

836

♂

Bandion

skin + body skel.

Pick-up by A. Attwood game Warden.

20 Sunset Drive, Berkeley, Contra Costa Co., Calif.

May 13 1940

skel. 837

♂

Pipilo maculatus

skel ^{unc. 6223} banded

Rodeo Creek, Contra Costa Co., Calif.

May 13

838

♂

Melospiza melodia

839

♂

"

"

840

♂

"

"

841

♂

"

"

842

♂

"

"

843

♂

"

"

844

♀

"

"

845

♀

"

"

846

juv

"

"

Canada del Cierbo, Contra Costa Co., Calif.

847

♂

"

"

848

♂

"

"

849

♂

"

"

850

♂

"

"

Marshall, 1940

53.

Catalog

Canada del Cierbo, Contra Costa Co., Calif.

May 13 1940

851 ♀ *Melospiza melodia*

852 ♀ " "

Lake Herman, Sulphur Springs Valley, Solano Co.

853 ♂ " "

854 ♂ " "

855 ♂ " "

856 ♂ " "

857 ♂ " "

858 ♂ " "

859 ♀ " "

860 ♀ " "

861 ♀ " "

862 ♀ " "

Cordelia, Solano Co., Calif. (Fresh Water Marsh)

863 ♂ " "

864 ♂ " "

3 mi. SE Cordelia, Solano Co., Calif. (Salt marsh)

865 ♂ " "

866 ♂ " "

867 ♂ " "

868 ♂ " "

869 ♂ " "

870 ♂ " "

Green Valley Cr., Solano Co., Calif. (4 1/2 mi. NW Cordelia)

871 ♂ " "

872 *Diadophis*

Marshall, 1940

Catalog

2 mi N Calistoga, Napa Co., Calif.

May 18

873 ♂ 873 Melospiza melodia

3 mi SE Calistoga, Napa Co., Calif.

874 ♂

875 ♀

NE slope Mt. St. Helena, 2200 ft., Lake Co., Calif.

876 ♂ Hylocichla guttata slevini

Napa River, NE side Napa, Napa Co., Calif.

877 ♂ Melospiza melodia

878 ♂

Humboldt Creek, 200 ft., Napa Co., Calif.

May 19

879 ♂ Melospiza melodia

Jameson Canyon, 300 ft., Napa Co., Calif.

May 20, 1940

880 ♂ Melospiza melodia

881 ♂

882 ♂

883 ♂

884 ♂

885 ♂

886 ♂

887 ♂

888 ♂

Pipilo maculatus

Between Ukland & Badger, Tulare Co., Calif.

889 ♂ June 4
Pipilo fuscus} Solano
Co.

Marshall, 1940

Catalog

Between Auckland & Badger, Tulare Co., Calif.June 4890 ♂ *Pipilo fuscus*Whitaker's Forest, 5500 ft., W slope Redwood Mt.,
Tulare Co., Calif.June 5891 ♂ *Peromyscus*

892 ♀

Meadows Flat, 5000 ft., W slope Redwood Mt., Tulare Co., Calif.skin + skull
body

893

♂

*Strix occidentalis*skin + body, skull +
stom contents + pellets

894

♂

*Glaucomys*Whitaker's Forest, 5500 ft., W slope Redwood Mt., Tulare Co., Calif.June 6

alc. 895

*Sorex palustris*alc. given to
Chas ReedBadger, Tulare Co., Calif.

896

Baeolophus inornatus

897

♂

Chamaea fasciata

898

♂

"

"

899

♂

Pipilo fuscus

900

♂

"

"

901

♀

"

"

902

♂

"

maculatus

903

♂

"

"

904

♂

"

"

Wortman's Mill, 5800 ft., W slope Redwood Mt., Tulare Co., Calif.June 7

905

♀

Aphyrapicus varius

906

♂

Pipilo maculatus

Marshall, 1940

Catalog

Wortman's Mill, 5800 ft., W. slope Redwood Mt.,
Tulare Co., Calif.June 7
907 ♂ *Passerella iliaca*

908 ♀ " "

MVZ caged bird

died June 9

909 ♂ *Zonotrichia coronata*

Mouth Coyote Creek, Marin Co., Calif.

July 1, 1940
910 ♂ *Melospiza melodia* shrubbery at edge salt marsh911 ♂ " " salt marsh - nesting(?)
(foraged on marsh) in shrubbery at edge where coll.

Corte Madera Creek, salt marsh at mouth, Marin Co.

912 ♂ *Melospiza melodia*

913 ♂ " "

914 juv. " "

Green Valley, Solano Co., Calif.

July 8
915 ♂ *Melospiza melodia* riparian

Cordelia, Solano Co., Calif.

916 ♂ *Melospiza melodia* fresh-water marsh

917 ♂ " " " "

918 ♂ " " " "

919 ♂ " " salt marsh (mate of 920)

920 ♀ " " " (mate of 919)

921 ♀ " " " "

922 ♂ " " " "

923 ♂ " " " "

Marshall, 1940

57.

Catalog

Grizzly Island, Solano Co., Calif.

July 8

- 924 ♂ Melospiza melodia (mate of 925)
925 ♀ " " (mate of 924)
926 ♂ " "
927 ♂ " "
928 ♂ " "
929 ♂ " "
930 ♂ " "

Monte Vista #3rd Street, Carmel, Monterey Co., Calif.

July 17

- 931 juv Junco o. pinosus sent by Laidlaw Williams
found dead beneath window
Strawberry Cr., N. side L.S.B., U.C. Campus,
Berkeley, Alameda Co., Calif.

932

Melospiza melodia

933

Zonotrichia l. metalli

skel

Boulder Cr., Santa Cruz Co., Calif.

acc 6293

July 28, 1940

skel 934

Dendroica nigrescens S. Allen

10 mi. W Santa Barbara, Highway 101, S. Bar.
Co., Calif.

July 31, 1940

skel acc 6247 935

♂ ad. Falco sparverius R. M. Bond

Moraga Valley, Contra Costa Co., Calif.

August

skel & acc 6307 936 ♂

Bubo virginianus

from Creek in

Marshall, 1940

58.

Catalog

Lake Almanor, Plumas Co., Calif.

acc 6311 August 19 coll. by H.P. Davis
937 Lophyrornis varius

Oakland, Alameda Co., Calif.

acc 6317 August 26, 1940
938 ♂ Coccyzus montana (from W. Gifford)
Strawberry Canyon, Alameda Co., Calif.
Sept. 28

939 ♂ im Thryomanes bewicki 10.0g.

940 ♀ im Vireo huttoni 11.6g.

Ciego Rd., Berkeley, Alameda Co., Calif.

Sept. 29, 1940

941 ♂ im Melospiza melodia 17.9g.

942 ♀ im " " 18.0g.

~~Indian Rock, Berkeley, Alameda Co., Calif.~~

~~Sept 30, 1940~~

~~943 im Zonotrichia coronata (found dead)~~

marsh between Stege & Isabel Pt., Contra Costa Co., Calif.

October 2

943 ♀? ad. Melospiza melodia (O/D) 15.8g.

944 ♂ ad " " 19.3g.

945 ♂ im " " 18.3g.

946 ♀ ad. " " 17.0g.

947 ♂ ad. " " 18.7g.

948 ♂ im. " " 19.9g.

949 ♂ ad. " " (S. Benson) 17.6g.

950 ♀ im. " " 16.5g.

951 ♀ ad. " " 16.4g.

Marshall, 1940

Catalog

Marsh between Stege & Isabel Pt., Contra Costa Co., Calif.
Oct. 2.

952	♂ im	Melospiza melodia	18.0g.
953	♀ im	" "	16.1g.

Live Oak Park, Berkeley, Alameda Co., Calif.

Oct 5

954	♂ ad	Junco oreganus	bill pink feet pearl grey	16.3g
955	♀ ad	" "	" "	15.4g.

Richmond Hills, Contra Costa Co., Calif.

Oct. 6

956	♂ ad	Melospiza melodia	21.3
957	im	" "	19.0
958	♂ ad	" "	20.4
959	♂ ad.	" "	18.4
960	♂ im	" "	19.1
961	♂ ad	" "	20.3
962	♂ ad.	" "	19.8
963	♀ im.	" "	17.2
964	♂ ad	" "	18.1
965	♀ ad	" "	18.2
966	♂ im	" "	21.1

967 im House Wren

968 ♀ im Passerella iliaca

San Pablo Marsh, Contra Costa Co., Calif.

969	im.	Melospiza melodia	22.4
970	♂ im	" "	18.8
971	im	" "	17.2
972	♀ im	" "	17.6

Marshall, 1940

60.

Catalog

San Pablo marsh, Contra Costa Co., Calif.

Oct. 6

973 ♀ ad *Melospiza melodia* 16.2

974 [♂] ad *Geothlypis trichas*

Slough S side Richmond, Contra Costa Co., Calif.

975 ♂ im *Melospiza melodia* 18.4

976 ♂ ad " " 17.9

977 ♂ im " " 20.4

1.4 mi. S Petaluma, Sonoma Co., Calif.

Oct 6, 1940 coll. S Benson

978 ♂ Microtus 196-54-20-15 59.9g.

979 ♂ ad. *Melospiza lincolni* 15.7g.

980 ♀ ad. " *melodia* 18.2g.

981 ♂ ad. " " 18.6g.

982 ♂ im " " 18.2g.

983 im " " 18.2g.

984 ♂ im " " 16.6g.

Austin Creek near Cazadero, Sonoma Co., Calif.

October 13

985 ♀(?) *Tamias troglodytes* 7.9g.

986 ♀ im *Hylocichla guttata* 24.0g.

987 ♀ im *Vireo huttoni* 11.7g.

988 ♂ ad *Regulus calendula* 6.2g.

989 ♂ ad *Melospiza melodia* 19.4g.

990 ♀ ^{yellow over (??)} ad " " ^{tail shot} ^{at wing-feather?} ^{scratching ~ for sparrow} 17.4g.

991 ♂ ad " " ^{nest} 21.6g.

Marshall, 1940

61.

Catalog

(N. bank)

Russian R., 4 mi from mouth, Sonoma Co., Calif.

October 13

992 ♀ ad *Melospiza melodia* dust l. wing 19.0g.

s. side mouth Russian R., Sonoma Co., Calif.

993 ♀ ad. *Melospiza melodia* 20.4g.

5 mi. N. Guerneville, Sonoma Co., Calif.

October 12

994 *Otus asio* pickup in highway

U.C. Campus, Berkeley, Alameda Co., Calif.

October 15

995 ♂ ad. *Melospiza melodia* 14 min 19.6g.

^{acc. 6367} 996 ♀ ad *Dendroica townsendi* " min 9.9g.

997 ♂ im *Melospiza melodia* 12 min 19.1g.

marsh at Bay Bridge entrance, Emeryville, Alameda Co., Calif.

October 15

998 ♂ ad *Melospiza melodia* 20.7g

October 16

999 ♀ ad. *Melospiza melodia* 17.4g.

1000 ♀ im. " " 17.8g.

1001 ♀ ad. " " 18.2g.

Bay Farm Id., salt marsh, Alameda Co., Calif.

1002 ♂ im *Melospiza melodia* 18.6g.

1003 ♀ im " " 16.8g.

1004 ♀ im " " 16.3g.

1/2 mi. E Lake Temescal, Oakland, Alameda Co., Calif.

October 19

1005 ♀ im. *Melospiza melodia* 18.1g.

1006 ♀ ad. " " 17.2g.

Marshall, 1940

62.

Catalog

1/2 mi. E. L. Temescal, Oakland Alameda Co., Calif.

October 19

- | | | | |
|------|---------------------|-----------------------------|--------|
| 1007 | ♀ im | Melospiza melodia | 18.6g. |
| 1008 | ♀ im | Chamaea fasciata iris cream | 15.4g. |
| 1009 | ♂ im Testes black " | " " " | 16.5g. |

South San Francisco salt marsh, San Mateo Co., Calif.

October 20

- | | | | |
|------|----------|-------------------|--------|
| 1010 | ♂(?) im | Melospiza melodia | 18.5g. |
| 1011 | ♂ im | " " | 18.5g. |
| 1012 | ♀(?) ad. | " " | 16.2g. |
| 1013 | im. | " " | 18.3g. |
| 1014 | ad. | " " | 18.7g. |

San Bruno, San Mateo Co., Calif.

- | | | | |
|------|------|------------------|--------|
| 1015 | ♂ im | Chamaea fasciata | 16.2g. |
| 1016 | ♀ im | " " | 15.6g. |

Upper San Francisquito Cr., Palo Alto, Santa Clara Co., Calif.

- | | | | |
|------|------|-------------------|--------------|
| 1017 | ♀ im | Melospiza melodia | 17.8g. |
| 1018 | ♂ ad | " " | 19.9g. |
| 1019 | ♂ ad | " " | (fat) 21.1g. |

October 21

- | | | | |
|------|------|-------------------|--------|
| 1020 | ♂ ad | Melospiza melodia | 19.3g. |
| 1021 | ♀ im | " " | 17.3g. |
| 1022 | ♀ ad | " " | 18.4g. |
| 1023 | ♀ ad | " " | 18.4g. |

aviary of C.W. Gifford, Oakland, Alameda Co., Calif.

- | | | | | | |
|----------|------|-----------|-------------------|---------------|--------|
| acc 6372 | 1024 | ♀ ov. lg. | Oreopelia montana | kidneys small | 83.9g. |
|----------|------|-----------|-------------------|---------------|--------|

October 22

- | | | | | | |
|----------|------|----------------|---------------------------------|---------------------|--------|
| acc 6373 | 1025 | no gonads juv. | Chalcophaps indica x stephani ♀ | peritoneum diseased | 95.9g. |
|----------|------|----------------|---------------------------------|---------------------|--------|

Marshall, 1940

63.

Catalog

(about 2 mi S Avon)

last willows at mouth Walnut Cr., Contra Costa Co., Calif.

October 25

1026		bobcat skull pickup	prepared by L.F. Sims	
1027	♂	<i>Melospiza lincolni</i>		16.0g.
1028	♀ im	" <i>Melodia morphna</i>	" " "	21.4g.
1029	♂ ad	" " <i>Merrilli</i>	bill shot	23.2g.
1030	♀ im	" " "		23.2g.
1031	im	" "		15.7g.
1032	♀ ad	" "		17.8g.
1033	♀ ad	" "		17.5g.
1034	♂ im	" "		18.6g.
1035	♂ im	" "	fresh marsh at water works	18.7g.

Avon, Contra Costa Co., Calif.

1036	♀ im	<i>Dendroprogne bicolor</i>	sq. flock + cliff swallows	16.6g.
1037	♂ im	<i>Melospiza melodia</i>		19.6g.
1038	♂ ad	" "		21.1g.
1039	♂ ad	" "	salt marsh N of highway bridge over mouth of Pacheco creek.	19.2g.
1040	♂ im	" "		19.0g.
1041	♀ ad	" "		19.1g.
1042	♂ ad	" "	salt marsh S of bridge	19.7g.
1043	♂ im	" "		19.3g.
1044	♀? im	" "	all in 1 flock	18.9g.
1045	im	" "		21.8g.
1046	♂ im	" "		19.6g.
1047	♂ im	" "	salt slough leading to Pacheco Cr. about 3/4 mi S of Avon	21.6g.
1048	♀ im	" "		17.0g.
1049	♀ im	" "		19.0g.
1050	♂ ad	" "		19.1g.

Marshall, 1940

64.

Catalog

Avon, Contra Costa Co., Calif.

Part with Avon series

October 25 1940

- 1051 ♂ im *Melospiza melodia* ^{19.8g.} cattails - isolated patch
at a sewer outlet 1/2 mi S
of Avon Station "Fresh" H₂O
aviary of E. W. Gifford, Oakland, Alameda Co., Calif.

October 29

- 1052 ♀ *Oena capensis* overdose of intestinal
nematodes 27.7g.
Golden Gate Park, San Francisco, Calif.

November 10

- 1053 ♂ im *Melospiza melodia* 20.6g
1054 ♀ im " " 17.9g.
1055 ♂ im " " 19.6g.
1056 ♀ im " " 19.8g

Arlington Ave. (fr. marsh), north Berkeley, Alameda Co., Calif.

November 11

- 1057 ♀ im *Melospiza melodia*
[Actually at headwaters of Arroyo Cr. in Contra Costa Co., - just north of County line]
Contra Costa Ave, north Berkeley, Alameda Co., Calif.

- 1058 ♀ im *Melospiza melodia* 16.6g.
1059 ♂ im " " 17.7g.

Mouth Coyote Cr. ^{edge} salt marsh, Marin Co., Calif.

November 16

- 1060 ♂ im *Melospiza melodia* 19.5g.
1061 ♀ ad " " 18.0g
1062 ♀ im " " 17.4g.
1063 im " " 20.8g.

Hills above Sausalito, Marin Co., Calif.

- 1064 ♀ ad *Melospiza melodia* 18.3g.
1065 " " *morphna* E.A. Storer coll. prep. E.A.S. 24.2g.

Marshall, 1940

65.

Catalog

Elk
~~Tennessee~~ Valley, Marin Co., Calif.

November 17

1066	♂ ad	Melospiza	melodia	18.4g
1067	♂ ad	"	"	19.2g.
1068	♂ ad	"	"	20.0g.

at salt marsh, ^{1 1/2 mi E} ~~mouth~~ Corte Madera Cr. Marin Co., Calif.

1069	ad	Melospiza	melodia	17.1g.
1070	♀(?) im	"	"	15.7g.
1071	♀ im	"	"	15.6g.
1072	♂ im	"	"	20.4g.
1073	♂ ad black / white	"	"	20.0g.
1074	♂ im	"	"	20.1g.
1075	♂ im	"	"	18.6g.
1076	♂ im	"	"	18.1g.
1077	♀ im	"	"	18.2g.
1078	♀ im	"	"	18.0g.

at southern
edge of
marsh

salt marsh, ^{near} mouth Gallinas Cr., Marin Co., Calif.

1079	♂ ad	Melospiza	melodia	19.4g.
1080	♂ ad	"	"	19.3g.
→ 1081	♂ t.l. ad	"	"	18.8g.
→ 1082	♂ t.l. ad	"	"	18.1g.
1083	♂ ad	"	"	18.0g.
1084	♂ im	"	"	18.6g.
1085	♂ im	"	"	18.6g.
1086	♂ very sm. window	"	"	18.1g.
1087	♂ im	"	"	18.1g.
1088	♀ ad	"	"	17.3g.
1089	♀ ad	"	"	17.0g.

Marshall, 1940

66.

Catalog

salt marsh, mouth Gallinas Creek, Marin Co., Calif.

November 17, 1940

1090 ♀ ad *Melospiza melodia* 15.5g.

1091 ~~♂~~ *Telmatoodytes palustris* E.A. Stoner coll. 9.4g.
pop. E.A.S.

Novato Cr., Marin Co., Calif.

1092 ♂ ad *Melospiza melodia* 19.2g.

1093 ♂ ad " " (near mouth) 19.9g.
E.A. Stoner coll.

1094 " " *merrilli* prep. E.A.S. 20.5g.

Southampton Bay salt marsh, Solano Co., Calif.

November 18

1095 ♀ ad *Melospiza melodia* 18.4g.

1096 ♀ ad " " 17.6g.

1097 ♀ im " " 17.7g.

1098 ♀ im " " 17.5g.

salt marsh, mouth Sulphur Springs Valley, Solano Co., Calif.

→ 1099 ♂ im *Melospiza melodia* 22.4g.

1100 ♂ t.l. im " " 20.8g.

1101 ♂ im " " 20.0g.

1102 ♂ im " " 19.9g.

1103 ♀ im " " 19.0g.

1104 ♀ ad " " 18.8g.

Lake Paddy Dam, Sulphur Springs Valley, Solano Co., Calif.

1105 *Melospiza melodia fallax* E.A. Stoner coll. 22.0g.
pop. E.A.S.

Lake Herman, Sulphur Springs Valley, Solano Co., Calif.

1106 ♂ im *Melospiza melodia* 20.5g.

1107 ♂ im " " 20.3g.

1108 ♀ im " " 19.5g.

1109 ♀ im " " 18.5g.

Marshall, 1940

67.

Catalog

Suisun, marshes S of, Solano Co., Calif.
November 18

- 1110 *Melospiza lincolni* E.A. Stoner coll. prep E.A. Stoner 15.0g.
1111 ♂ im *Melospiza melodia* 21.8g.
1112 ♂ im " " 20.7g.
1113 ♀ im " " 20.8g.
1114 ♀ im " " 19.3g.
1115 ♀ ad " " 18.3g.

Claremont Distr., Berkeley, Alameda Co., Calif.

Dec. 1

- 1116 ♀ im *Passerella iliaca* ^{31.5g after 5 days} pickup by C.G. Thompson
Strawberry Canyon, Berkeley, Alameda Co., Calif.

Dec. 8

- 1117 ♂ im skull with windows *Zonotrichia coronata* from E.O. Dodson
1118 ♀ skull complete but dots sparse on top " "
1119 ♀ *Chamaea fasciata* "

Frank Valley, 2 mi S Muir Woods, Marin Co., Calif.

December 22

- 1120 ♀ *Passerella iliaca* sent to E.O. Stoner 31.6g.
1121 ♂ ad *Melospiza melodia* 19.0g.

Manzanita Sta., Marin Co., Calif.

- 1122 ♀? *Passerculus s. bryanti* picked up by Mrs. Kelly ^{on R.R. Track in salt marsh.} 16.9

Rubio Wash, Altadena, L.A. Co., Calif.

December 26

- 1123 ♀ ad *Melospiza melodia cooperi* 18.0g.
1124 ♀ ad " " 21.5g.

Marshall, 1940

Catalog

Richardson Bay salt marsh, 1 mi SE Mill Valley, Marin Co. Calif.

December 31, 1940

1125	♂ t.l.	} pair	<i>Melospiza melodia</i>	19.6g.
1126	♀ o.s. +		"	18.2g.
1127	♂ t.l. 3.3 mm. im		"	18.9g.
1128	♂ t.s. +		"	17.8g.
1129	♂ t. medium	} pair	"	17.7g.
1130	♀ im		"	16.1g.
1131	♂ t.l. 5 mm.		"	19.9g.
1132	♂ t.s. + 2.8		"	18.1g.

1 1/2 mi E San Geronimo, Marin Co., Calif.

1133	♂ t.s. 1.5 mm.	"	" fat	18.8g.
1134	♂ t.s. 1.2 mm.	"	" very fat	19.7g.
1135	♂ t.s. + 1.5 mm.	"	" very fat	21.6g.

Pt. Reyes Station, Marin Co., Calif.

1136	♂ t.s. 1 black, 1 white	"	" very fat	22.8g.
1137	♂ t.s. im t. = 1.2 mm.	"	" very fat	20.0g.
1138	♂ t.s. 1.1 mm	"	"	21.1g.
1139	♂ t.s. 1 1/2 mm.	"	"	19.9g.
1140	♀ o.s.	"	" very fat	21.5g.
1141	♂ t.s.	"	" very fat	21.3g.
1142	♀ o.s.	"	" very fat	19.6g.
1143	♂ t.s. +	"	" very fat	22.6g.
1144	♀?	"	" very fat	20.3g.

Frank Valley, 2 mi. S Muir Woods, Marin Co., Calif.

1145	♀ o.s. im	"	" fat	19.7g.
1146	♀	"	" fat	22.5g.

Marshall, 1940-41

Catalog

S slope Mt. Tamalpais, Marin Co., Calif.

December 31, 1940

1147 ♀ Otus asio + body + skull 142.1 g.

stomach: 4 sm. beetles

1 Batrachoseps

1 milliped

1 Jerusalem cricket

10 large green caterpillars

Lake Chabot, Solano Co., Calif.

January 11, 1941

✓ 1148 ♂ ts, fat Melospiza melodia 19.1 g.

✓ 1149 ♀ fat + " 20.3 g.

✓ 1150 ♂ tm " 21.2 g.

✓ 1151 ♀ im, fat " 19.6 g.

✓ 1152 ♂ tm fat " 21.5 g.

✓ 1153 ♀ fat " 21.0 g.

✓ 1154 ♂ im fat ts. " 21.2 g.

✓ 1155 ♂ tm⁺ not much fat " 20.3 g.

1156 ♂ ts medium fat " 22.0 g.

Jameson Canyon, Napa Co., Calif.

✓ 1157 ♂ tm⁻ fat " 22.0 g

✓ 1158 ♂ ts medium fat " 19.7 g

✓ 1159 ♂ tm fat " 21.3 g

✓ 1160 ♀ fat " 20.3 g

✓ 1161 ♂ t⁴ 6 mm very large " 19.6 g

✓ 1162 ♀ im? fat " 19.7 g

✓ 1163 ♀ im fat- " 19.1 g

probably 4-6 some fat not much

Marshall, 1941

Catalog

salt marsh mouth Carneros Cr., Napa Co., Calif.

January 12

- 1164 ♂ *Telmatodytes palustris* 10.8g.
1165 ♂ t. 2.4 mm *Melospiza melodia* not very fat 18.4g.
1166 ♀ " " " " 17.0g.

willows, mouth San Antonio Cr., Marin Co., Calif.

- 1167 ♂ t. 1.3 mm *Melospiza melodia* fat 20.9g.
1168 ♂ t. 1.9 mm " " very fat 23.7g.
1169 " " 23.6g.

(fresh water marsh 1/2 mi E Selby)
Canada del Cierbo, Contra Costa Co., Calif.

January 26

see 4 coll by D. Chatterin

- ✓ 1170 ♀ *Melospiza melodia* 18.8g.
✓ 1171 ♀? fat - " tick on top head 18.1g. 18.1g.
✓ 1172 ♂ t. 3.4 mm. " " 21.5g.
✓ 1173 ♀ ovary 5.5 mm long " " very fat 21.1g.
✓ 1174 ♂ t. 2.6 mm. very fat " " " 23.2g.
✓ 1175 ♀ fat " " 17.6g.
1176 ♀ ad *Melospiza melodia* 21.3g.
1177 *lincolnii*

salt marsh side Martinez, Contra Costa Co., Calif.

- ✓ 1178 ♂ t. 3 mm. *Melospiza melodia* fat, very 22.2g.
✓ 1179 ♀ ovary 5 mm long " fat 19.9g.
✓ 1180 ♀ im fat - " " 18.6g.
✓ 1181 ♀ fat " " 18.0g.
✓ 1182 ♀ fat " " 18.5g.
✓ 1183 ♀ very fat " " 17.5g.
✓ 1184 ♀ very fat " " 19.3g.
✓ 1185 ♀ fat " " 18.3g.

Marshall, J. T., Jr.

Field notes on

Otus flammeolus

Otus trichopsis

for 1938-1939

Joe T. Marshall, Jr.
Museum of Vertebrate Zoology
University of California

Summer of 1938 & 1939
Field notes on Otus flammeolys pg. 1-27
~~Specimen catalog #376-514~~ 28-57.

Otus trichopsis 1939 1-5

Marshall, 1939

1.

Otus trichopsis

4 mi. N Patagonia, 4500 ft., Santa Cruz Co., Arizona

July 16, 1939

Camp in wide upper Sonoran canyon, facing East, & heavily timbered in spots with beautiful stands of oak. Also walnut (?), sycamore, & many other broadleaves. Sides of canyon more brushy & with dwarfed oaks. Dry creek bed in flat bottom of canyon. Canyon bottom 50 - 200 yds. wide. At bottom of ^{this} gently-sloping canyon (to E.) the Lower Sonoran zone begins. Spring in little side canyon 100 yds. S camp.

After 2 coll., a poorwill at dusk (from the brushy S wall), Woody & I started down the canyon towards an especially fine stand of oaks bordering a clearing in a wide place in the valley (a Coronado Forest gate at that pt) 3 mi. down (E). It was now dark; & we took about 2 hrs. to travel the 3 mi. I called for Otus asio most of the way - also Otus flammeolus & Strix. When we were about 200 yds. from the grove (mentioned above), heard rustling

Marshall, 1939

Otus trichopsis

Patagonia Ariz. July 16

in sycamore as we passed under it. We lay down under this tree, in order to listen. I gave a few screech owl calls, & presently Woody heard some answering notes. ~~As I remember them, they were~~ They were in series, and ascending in pitch, as I remember. They were rather high, and ~~also~~ were of similar quality to the harsh early-morning notes of screech owls.

"quint-quint-quint-quint-quint". I
 imitated these notes & proceeded down
 to the gate. The first individual
 was now silent, but beyond
 the gate, two more answered,
 with similar unmusical series of
 cries - also higher-pitched screeches
 & yaps. They retreated, calling
 a while when I approached.
 Presently I heard from low in the
 oaks close at hand, a series of
 very low whistled notes - as low
 as I could whistle (middle C)
 They couldn't be told from my own
 whistle at middle C. "who-who-
 who-who-who-who-who-who-who-who-who-who."
 7 syllables, all same pitch, all of

Marshall, 1939

3

Otus trichopsis

Patagonia, Arg., July 16

equal intensity & duration. They were not broken off sharply from each other as are the notes of Otus fl. The seven syllables are given in about 3 sec. - a little more than 2 per. sec. This call is very low for an Otus - fully an octave lower than the other 2 sp. which are around the C above middle C. It was very faint, also - for the bird was close at hand and retreated promptly whenever I tried to approach it. Nor could I lead it out. Its series of notes was given only every 2 or 3 min & the bird was hard to follow. I made several tries at it, also at the other two, who squawked and squeaked occasionally from the sycamores in the floor of the valley. I thought that this was a two-man job - so I went to Woody, woke him up, & taught him the call. He was to start the owl calling, then I would get on the other side of it & he could drive it to me. (The owl called again near us, & again I chased it far up the hillside

Marshall, 1939

4.

Otus trichopsis

Patagonia, ~~Arg.~~ ^{Chile} July 16

of oaks.) It was now about midnight & dark (no moon), a slight wind. Woody & I went down to the gate to work out our plan. He was under a sycamore near the gate & I stayed under some oaks near the side of the canyon. In both these trees, the cries had been heard. After a few minutes of utter silence (- to calm the owls down), Woody began to call; presently I began to answer him. After about 10 min, the cries were heard again, far away. Then in 5 more min, the hoots were heard from a solitary tree in the valley floor & about 25 yds. from Woody. He & I both continued to call. These notes were of same pitch & intensity & low-whistled quality as before, but they were uttered in a rhythm: too-too toooo, too too; too-too toooo, too too; etc. etc. etc. etc. etc.

Marshall, 1939

5.

Otus Trichopsis

Patagonia, July 16

continued to call. I turned on my light & stopped calling & started to stalk the bird. It moved to a very dense oak 30-yds from Woody & called. I saw it sitting half-way up in the tree & on an horiz. branch. Good clear yellow eyesine. I fired & missed altogether. I called to Woody & he said the bird was still hooting. I saw it on the same tree & about a yard closer to the trunk than before. This. It still hooted steadily & this time I collected it at close range with 410. ♂ 667. No more were heard all the way back to camp. There were many favorable nesting sites in dead hollow oaks in the canyon, but I located no nests.

Marshall, 1938

1.

Otus flammeolus

THE FOLLOWING IS A SUMMARY OF OBSERVATIONS PRIOR TO 1938. DATES AND LOCALITIES ARE TAKEN FROM NOTES JOTTED IN FIELD MANUAL (HOFFMAN)

Dry Lake, 9000 ft., N Base Mt. San Geronimo, San Bernardino Co., Calif.

June 29 & 30, 1935 Single, uninflected hoots, soft and very ventriloquial, given at different times throughout night - in 8 second intervals. Sometimes as long as 13 sec. intervals. Sounded very distant. On one night two Great Horned Owls were hooting at the same time as was Otus f. Hoots came from lodgepole pine timber on S North side lake. Clear, no moon.

Whitakers Forest, 5500 ft., 10 mi. NE Badger, Tulare Co., Calif.

July 14, 1935 Hooting heard several times during the brightly moon-lit night from my bed on porch of Cedar Cabin. Came from public camp across road to north. Single, at regular intervals.

Trail from Sequoia Ranger Station to Park Ridge Lookout, S. Side Park Ridge, 6500 ft., Tulare Co., Calif.

August 10 & 13, 1935 Measured, single hoots in 8 sec. intervals heard in same locality on each of these clear, brightly moonlit nights. On the 13th, on the way back down the mt., the owl was heard several hundred yds, ahead. I gave imitated hoots and the owl soon came up the mt., and alighted in a gnarled Jeffrey Pine directly over my head. Here it continued to call. The obvious closeness of the bird and the slight volume of the calls made me certain that it was a very small bird and not possibly the full-voiced Long-eared Owl.

Camp Chonokis, 6500 ft., $1\frac{1}{2}$ mi. E Bijou, S End Lake Tahoe, Eldorado Co., Calif.

June 4, 1936 Series of single hoots in 6-8 sec intervals heard at various times during night from open forest of Jeffrey Pine on steep, rocky

Marshall, 1938

Otus flammeolus

(Summary of observations prior to 1938)
mt. side above camp. **** Heard almost every
night throughout June, especially on moonlit
nights. Always sounded very distant and ventril-
oquial. Probably only a single individual.

* * * * *

* * * * *

Whitakers Forest, 5500 ft., 10 mi. NE Badger,
Tulare Co., Calif.

May 20, 1938 At 9:00 PM - clear, windless,
dark night - heard, from cabin at S. end pool,
barely audible hooting on hill to NE. above
Public campground. Absolute limit of audibility.
Followed sound 300 yd. to public camp. Recogniz-
ed as similar to that heard & attributed with
? to the Flam/ Scr. Owl in 1935. Ran back to camp
& got gun & headlight; hurried back where sound
was picked up again. I gave answering calls &
followed bird thru deep forest on hillside NE
public camp/as it moved northward at intervals
far ahead. Finally caught up. Sound coming
from in or about dense, high clump white firs,
Ventriloquial - sounded as if bird were flying,
each hoot apparently coming from different dir-
ection. Finally became accustomed to it & deter-
mined it to be near top 80' fir. Tree too dense
to locate by eyeshine. Probably sitting on limb
close to trunk - keeping out of my sight as well
as that of possible enemies - Spotted Owls, etc
Notes all same pitch; short, staccato, high, later
figured to be about B above middle C, and given
at regular intervals a little greater than 2
sec. (This is faster cadence than others heard
before. At every 15-25 sec--th hoot would length-
en interval to 3-5 sec. as if listening for an-
swer, then would start again very often at lower
- B-flat, or even A. By the time the next stop
would occur, the pitch would have been worked
up to the original pitch, so gradually as not
to be noticed until the bird started again at

Marshall, 1938

Otus flammeolus

Whitakers - continued.^a

a lower interval. The hoots are full vowel sounds not whistles, are the vowel oo as in hoot.

Staccato effect best imitated by the pronunciation of boop, boop, boop, etc.

After 20 min., hooting ceased, to be resumed after $\frac{1}{2}$ min. near top young Sequoia 35 ft. high, 30 yd. away. (This tree again the highest one in clump. Didn't alight in open-branched black oaks, common thereabouts. Tried to locate with flashlight but light burned out. Sat down for $\frac{1}{2}$ hr. trying to fix - owl kept up continual hooting - returned to original perch. I circled tree clump to determine ~~to-a-~~ which it was in - was definitely the highest fir - 80 ft. high - below top. Owl stopped - resumed with same succession of hoots at same interval but with 2 additional shorter notes, slightly over $\frac{1}{2}$ step lower - ahead of each hoot, "

Second definitely cut off & distinct from main hoot: boot-ooop, boop ; boot-ooop, boop ; etc.

Kept this up for 15 min., then a pause & back to original pattern. Walked to base of tree, crashing among fallen limbs. Owl not disturbed.

Pounded trunk with gun - immediate effect - silence. I continued to call & in 3 min., owl answered farther to ~~nebb~~ N. * * *

Call shorter, more rounded vowel oo ~~tha-n-~~ and ~~higher~~ lighter than that of Long-eared Owl. Higher pitch also? Thought saw something alight on bare limb dead pine; shot, owl moved, answered later to my calls.

Returned to camp, fixed light. In $\frac{1}{2}$ hr., owl answered again from middle 25 ft cedar 50 yd. (E) orig perch. Very close, yet sounded distant. Couldn't locate with light - was far within tree & concealed. Climbed up adjacent oak, to its level; cracking of branches frightened owl to its original perch. Tapped on trunk hoping to drive to open perch. Silence - called again almost out of earshot far to S. Sound followed to dense clump firs, cedars 150 yd. away. Again high & concealed. Tapped - drove to another similar perch, then back to original

Marshall, 1938

Otus flammeolus

Whitakers - contin.

perch. Gave other 3-syll. call for while, intersperced with regular hoots. Resumed regular hooting. I climbed tree 15 ft. away with gun & light, hoping to see owl when I reached his level. Top broken - seat - still below owl. HE kept hooting. Tied myself to tree, moon rose (last $\frac{1}{4}$). Owl kept calling. Once in while would stop altogether, ~~recommenced~~ recommenced only after I called; therefor wouldn't have hooted all night if I hadn't called. Dozed - heard owl all the time - awoke in $\frac{1}{2}$ hr. before daybreak. owl was calling far to E. I called & it immediately came to or original perch, & hooted steadily. At 1st. indication of dawn, stopped/, . Heard 15 min. later - gave several calls far to NE, now fairly light. Probably feeding in this interval. Had probably eaten in early evening, again at dawn. No foraging all night (constant hooting) unless gets spiders & insects from high in trees. Arboreal? Many spiders in my tree. But hooted at regular, short intervals all night. Obviously didn't go to nest - no others heard; probably not nesting - nesting over? If so, why persist-calling? Why territorial behavior? Perhaps a solitary individual trying to attract mate. Definite territoriality regular perches within given area 300 yd n&s by 75 yd. up & down hill. Definite song perches established in similar and safe spots. Not yet certain of identity

May 21 Returned at dusk to cedar perch 50 yd. above central fir perch. Called continually. Heard nor saw nothing until almost pitch dark. (No moon) Batlike form flitted past nose - silhouetted against W sky. Was within $1\frac{1}{2}$ ft. of face. Came from SE - uphill. Saw something flick in middle cedar tree perch. Owl began softly to hoot saw it leave thru opposite side tree. Resumed orig perch in fir & hooted. Tap trunk, flew; answered far to N. Followed but it soon stopped calling. Foraging? I stationed myself in opening in timber where trunks silhouetted. I called 20 min. At length figure size lg. bat flew swiftly & silently overhead, 25 ft up, from NW. Flew

Marshall, 1938

5.

Otus flammeolus

Whitakers - contin.

at downward slant as of heading for gnd. Typical screech owl form: long, broad wings, large head in front, short tail behind; swift, direct flight. Commenced to hoot 25 yd. up hill. I followed past stump with hole (NO NEST) to open group sm. cedars with few and open branches & bare humus beneath. Owl calling softly from within these. Seen on small limb 3 ft. above gnd. - Forages at gnd. like Screech Owl? Not arboreal feeder. Obviously foraging since not calling much. Calls after feeding. Form & eyeshine similar to asio. Even light grey color in flash light. Tapers from head, almost to point, where wings end behind tail. No ear tufts visible. Seen at 15 ft., changed to .410 aux in open choke. Owl ~~leaned to side~~ returned to side and leaned forward as screech owls do preparatory to flying. Paused then took off ~~lig~~ lightly & swiftly. Continued to call in neighboring cedar. I got directly in front of it as it sat on long branch of low cedar & 4 ft. off gnd. Eye-shine visible, turned head from side to side. Collected - #377 male, body & full stomach in formalin. $\frac{1}{2}$ hr. after dark (about 8:PM)

May 22 Returned in evening to call, hoping to hear mate or find nest. None found. Solitary due to rareness. ^{Otus} asio always in pairs even after breeding.

* * * * *

Proximity to Otus asio in Public campgnd. in summer ~~193~~ 1935. Definite transition zone, (shot in cedar). Continuity of hooting - slave to glands? Why hooting in 1st place? Territory or attraction to female? Tried giving hypothetical female call, higher; no effect. Very tame, flushed only when I climbed oak & at shot & tapping trunk. (Therefore climbing mammals a possible enemy.) Definite restricted territory & love of cover & success in keeping out of sight. Calling prolonged & often started by my hoots. Curiosity or territoriality. Imitated hoots very accurate, probably second.

Marshall, 1938

Otus flammeolus

1 1/8 mi. S Whitakers Forest on 5500 ft. contour
(Forest Service Map of Eshom Cr. Unit), 10 mi.
NE Badger, Tulare Co., Calif.

June 3 Burned over timber, very dense stand young
firs & cedars. Heard faint hooting at dusk. Took
45 min. to trace todense, tall grove on flat, 1
low gnd. Dark; new moon. Hooting in 4 sec intervals
sparodic & very soft. Hard to approach; bird would
fly when I hooted. Alternated series of boop,
boop, etc., with boot-oop, boop as deacribed before
Two heard at same time. One gotten close to :
peculiar modification of its single call after
I gave calls near it . (perhaps due to approach
of silent female and not my presence.) Call
changed to throaty, rushing sound, tone almost
lost. I moved up hill, calling . Bird went ahead
from one dense high clump to the next. Stayed
within one clump surrounding a black oak & now
called in ^{steadily} earnest. (Aroused, or in own territory?
- hence retreat from first locality.) Began to
call more rapidly, then changed to breathy sound.
Another answered in same tree (presumably
female)-and was shot when I noticed its pinkish
eyeshine as it sat on a high, dead cedar branch
in the interior of the clump. (All branches
bare in the shaded interiors of these clumps
hence more chance of locating birds from with-
in.) The bird shot was lower in the tree than
was the original occupant . Male # 410. First,
probably a male also (hence breathy call a
territorial reaction to another male) called
in earnest, and was made bolder by curiosity as
I called at the base of his tree clump. Alight-
ed in open parts of Black Oak. Seen several times
too close to shoot. Saw pinkish eyeshine. Silence
before & after a swift rush of wings: probably
a larger owl making an attempt to catch ~~the~~
the Otus. Flew from perch to perch around
me untill its interest waned. Several times flew
very close. Couldn't see but could hear slight
rush of wings.

3 hrs. after dark
about 11:pm.

Commonness - Status of "rare Birds"-
Maintenance of minimum population to permit
survival means even distribution in a sedentary

Marshall, 1938

Otus flammeolus

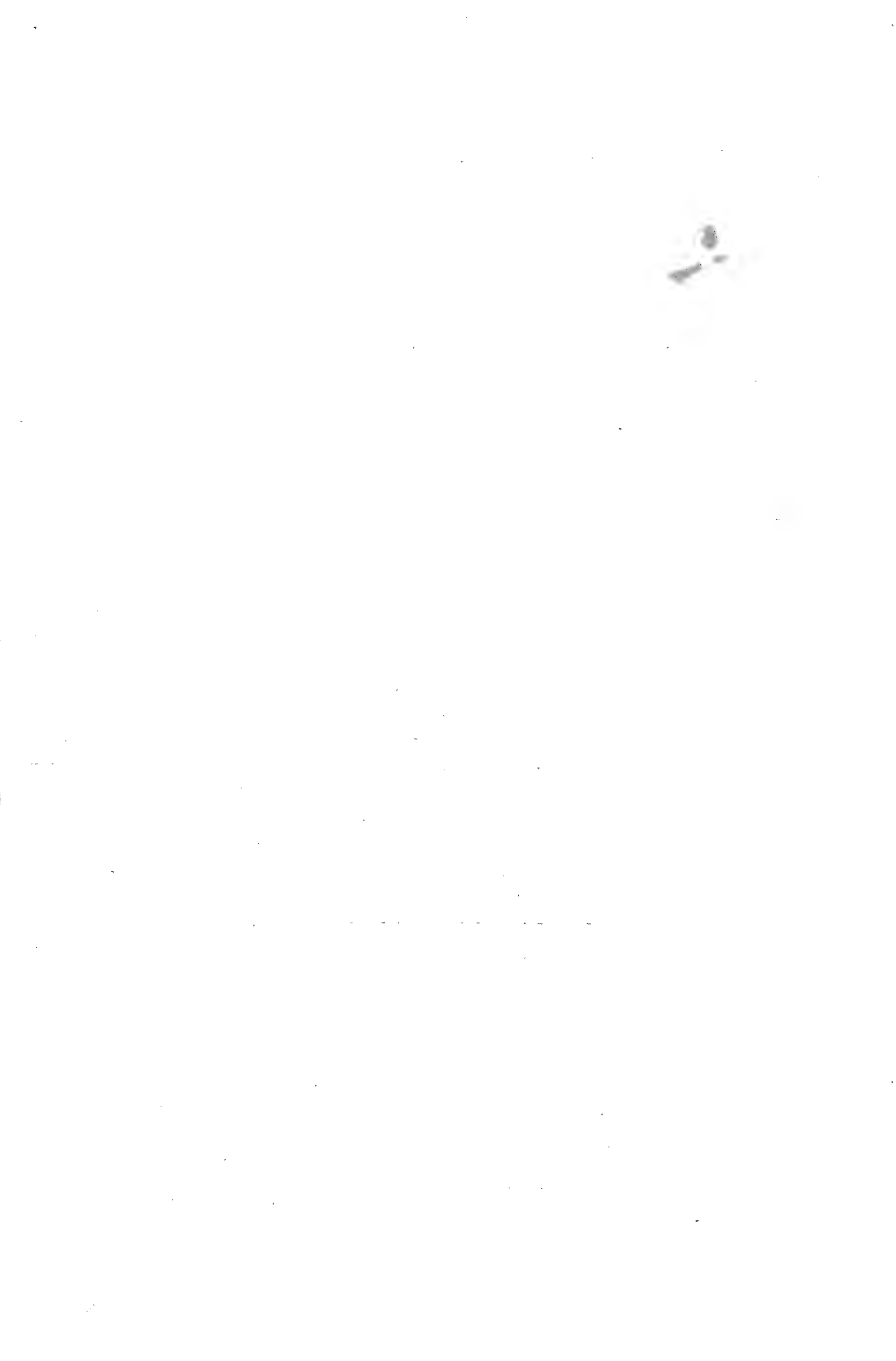
Whitakers - contin.

bird. Is this near a center of the population or are they as common but unnoticed in other areas (i.e. Grinnell in Yosemite - none heard or seen in that entire area)? Extention into transition zone. Probably only requirement is stand of conifers over dry hillsides (indication of gt. basin origin?). Where are females? Silent or brooding? Times when males change tone may indicate presence of females. If they are brooding, why aren't the males at the nest feeding the m?

Whitakers Forest

June 4 Clear, calm; $\frac{1}{2}$ moon. Public camp above place where #377 shot. 1st at stream; evasive as usual at first. More interested later & followed me along road, stopping at various high, concealed perches to give series of single hoots. Stopped in grove young Sequoias at road near three sister Big Trees. Seen as flew across interior of clump/. Distinctive variation of triple call: 4 syll. - bootle-opp, boop; etc. walked 125 yd. away, still heard in spite of water and low intervening ridge. Probably can be heard 300 yd in clear. Thought heard another down hill. 1st followed me down - seen in branch Ponderosa Pine in lower, more open clump. Flew from perch, flitting like insect with rapid wingbeats -- i-e-deesn8t-j- i.e. doesn't jump then fly, but proceeds entirely by wings. Indicates relatively greater strength of wings associated with pursuit of flying insects?

June 7 None in place visited June third & revisited this evening. Cold, stormy night; high wind, couldn't hear. Heard at ~~evening~~-ef-crossing of Wortman's road & main highway, $\frac{1}{2}$ mi. below camp. Crose described ~~tt~~ call as pigeon-like z-ee-re. Persistent hooting at 6 sec. intervals. Calling in spite of storm. Ventriloquial. Often changed pitch (lower) after moving; and when in one place would change pitch or quality making sound seem to come from



Marshall, 1938

Otus flammeolus.

Whitakers, contin.

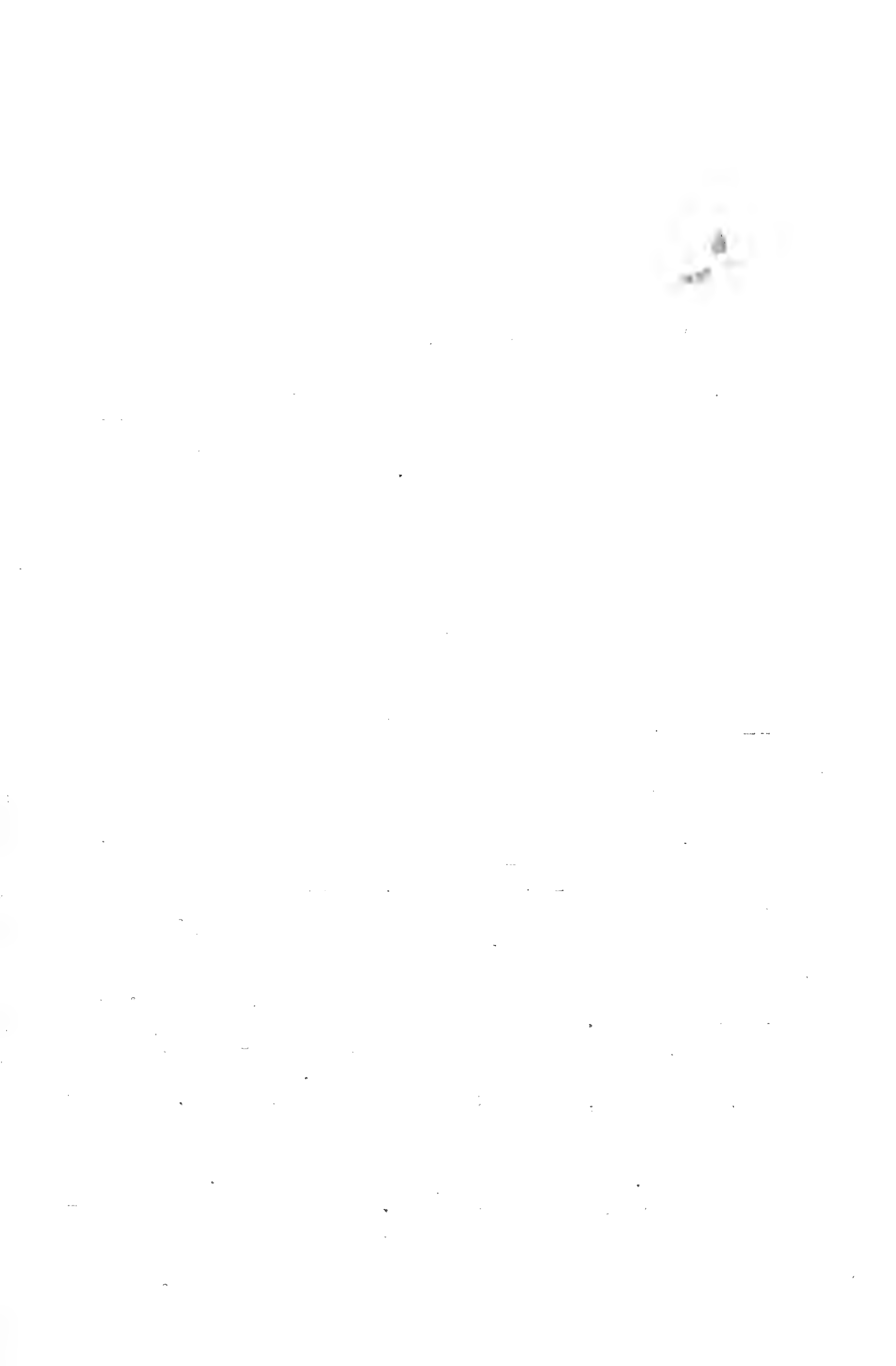
different place. Same alternation of calls. Seen by flashlight from rear; from front, in direct view, no eyeshine, just large, dark eyes. At one time, hoot was higher & sounded like different bird. Several times changed to rushing sound, like night-hawk. Another bird present? As usual was in clump conifers encircling Black Oak. Finally shot - #413 male - as sat in crotch in Black Oak. Perhaps hooting occurs later in evening after feeding, therefore none heard at first locality. 2 hrs. after dark - about 9:30 PM

June 8 Same place as on 4th. (Above public camp grnd. $\frac{1}{2}$ mi. N camp) In sunset light, heard answer from tree at edge little wet meadow. Called 9-10 times then quiet. Resumed again later, then again. In close, open-branched grove young cedars, saw ~~it~~ it flit past - seen in flashlight.

Flew swiftly thru trees & out & up at edge clump & swerve back to perch as if had caught a flying insect. (Large moths & other flying insects* abundant.) Then flew back to interior, stopping instant at two perches, but keeping on the move as if following insect. Hence, explanation of always being high up. Too small & weak-footed to catch mammals, but strong wings & rapid flight, darting flight for pursuing insects. Walked 200 yd. to stream where seen on 4th. Another there. Couldn't approach - didn't give double call, so couldn't tell if same bird. Went back & found 1st. in a clump dense, streamside clump where seen on 4th and only 25 yd from meadow. Same 4-syll. call as the bird seen there on 4th. Two within 200 yd. Bright, clear; gibbous moon; calm.

June 10 Same locality $1 \frac{1}{8}$ mi. S camp on 5500 ft. contour, as on June third.

Cloudy, dark evening. Still very light although a very cloudy day. One called 75 yd. S stream (first stream S south bend in highway between camp & Sequoia ranger station).



Marshall, 1938

Otus flammeolusWhitakers, June 10, contin.

On open pt. As usual, soft at first, then gradually louder. Long silences (foraging). Flew bullet-like from high pine to fir clump where seen. Flew again. Silence, then hooted from $\frac{1}{2}$ -way up young pine lower on ridge. Flew with amazing rapidity to high, lone Ponderosa Pine where seen as silhouette. Made rapid dart out & up; swerve & back to perch. Accelerated fly-catcher style. Only interp. that it was catching insect on wing. Amazing dash & vigor. Minimum time in open; less danger. Distinctive triple call; second syll. shortened, not of equal intensity as 1st, but slighted. Beetle Beet Boop-dp, boop; etc. This bird's territory was on the way from camp to the area indicated above. At that area, a little later but still light, one suddenly called loudly from sm. yellow pine above rocks at edge low, flat grove. Approached to within 10 yd. Bright pinkish eyeshine. Flew down then up to another clump. Modified, muffled call given in flight. Hooted, then back to huge Black Oak. Then flew N 200 yd, heard a few times. On return trip, heard same owl in same area as discussed at top page (9). Stayed around clump fir & pines encircling Black Oak as usual. Same call (second syll. slighted almost out of existence).

Another in back ranger station - carried on ly 50 yd. - rushing ~~heard~~ hoot - sporadic, soon stopped. Only 60 yd. from where male #413 was taken. Mate to #413?

June 11 Dusk; above haunted house, north place where #377 shot. A different owl in terr. of bird with 4-syll. hoot, or else same bird had changed voice to "bootle, boop" instead of "bootle-opp, boop". Accelerated once after high note heard. Another bird? * * * Discuss comparison with Poorwill. Is counterpt. in size, form, wing-surface, and food. (To be proven by examination of preserved stomach contents.)

Later, cloudy, full moon, calm. End rd. at NE corner property. ~~Answered~~ hoots. As usual,

Marshall, 1938

Otus flammeolus

Whitakers, June 11, contin.

began very softly, then louder, and came to clump of young Ponderosa Pines surrounding lg, Black Oak. Low in trees but not seen except in flight. Low, faint clucking sounds heard nearby - a female? Absolutely best view of behavior yet seen - bird very tame; stopped hooting & was watched foraging in oak. Would stay in one perch for a minute or more, then would fly to another, once clearly making a dart at an insect on the way. Perched in the lower & middle parts of the tree, on bare branches. Alighted on stub about 6 ft. from my face. Seemed to be infested with parasites - scratched with foot, shook feathers, preened here & there with bill. All movements remarkably speedy & energetic - shook feathers so violently that it was only a blur. One peculiar movement done several times was stretch-stretching head high & opening bill several times as if ejecting something. Continually peered from side to side & up & down with very rapid movements of head. Looking for flying insects like ~~Tyrannidae~~ Tyrannidae? Looked intently up then flew in that direction directly to higher branch. May have been examining branches for spiders, etc; then flew to capture one. Posture, leaning forward - not upright, suggestive of alertness & readiness to fly. Gt. energy, trim, handsome, ~~falcon-like~~ - falcon-like build - powerful shoulders, tapered to pt. where large wings end behind tail. Not chunky & clumsy looking like most owls. Once, called several times after one short flight to pine. In ~~later~~ another pine where sitting 8' off gnd., flicked wings like hermit thrush, twice. Coloration, when close, could see complex pattern of markings on white underparts; when farther, all blended into grayish uniform color, similar to bark trees.

Followed me down rd., called while in low pine. Shook out feathers again, wiped bill twice in succession on twig, like linnét.

Marshall, 1938

Otus flammeolus

Meadows Flat, 5000 ft., $1\frac{1}{2}$ mi. S W
Whitakers Forest, W Base Redwood Mt., Tulare
Co., Calif.

June 12 By dusk, had reached 100 yd. thru forest at S end meadows. Road turned E, following sm. cr. 1st owl heard as soon as fairly dark, and followed from tree to tree in its territory on the N. side rd. Even, close stand ponderosa pine & fir; occasional black oak. Few open spaces in forest. Owl seen flying about from perch to perch high in trees. At first, hard to approach; later tamer or more curious, perched lower in smaller trees. Remained chiefly in & around 2 lg. black oaks. Long periods of silence when foraging. Would continue to call when I would change location & hoot. Nondescript, soft, higher-pitched cries heard few yd. E occasionally. May well have been female. Couldn't locate. Saw male several times too close to shot; finally shot as sat near top young ponderosa pine next to one of bl. oaks. Located by sound & pink eye-shine. Densest forest yet found in. Rather obvious indication of arboreal feeding. Was male, #430. $\frac{3}{4}$ hr. after dark 8 p.m.

Now dark. Heard another, 90 yd to S. across rd. & cr. Was in tall yellow pine top, calling persistently. Tapping trunk didn't move it. Soon heard 3rd 80 yd E. Both calling in same tempo. I followed newcomer & other followed me up hill to the new territory. All three of us hooting in chorus. I gave hypothetical calls of female (higher-pitched inflected) & produced immediate effect in the two. Both came down close to me and gave the rushing-sound breathy hoots. Now in open forest on slight rise. Owls now called on e at time for several stretches per. Could tell both present because both stayed in respective trees. Were in black oaks, as usual. Silence, then one hooted as sat next to trunk lg. pine at edge clear space (rocks). Was on low horiz. limb, and pink eyeshine vis. Absolutely in open! No branches nor foliage near. Collected it; male # 431. Other heard few yd. up, and followed to rd. as shown on Forest Service map Eshom Cr. unit. This bird, since stayed around this easterly territory was probably the new-

Clicked mandibles when picked up. $1\frac{1}{2}$ hr. after dark - 10 p.m.

Marshall, 1938

Otus flammeolus

Meadows Flat, June 12.

comer (third male heard). It stayed higher in the now dense stand young conifers (similar to terr. #430) and was not seen although it answered my hoots at intervals. Again other faint higher sounds were heard nearby, & attributed to another female. Another supposedly a male was heard at this time back in terr. of #431 & was probably the one heard several times from that area on my way back to the meadows. I paced off the distances involved & determined that these four males & the two supposed possibly to be females were all within an area 250 by 100 yd. Thus for this uniform and dense young forest or conifers with its occasional black oaks, we have the densest owl population yet recorded in my observations. It may well be possible that there are no Spotted Owls or other owls which might prey upon the Screech Owls in this locality & that this may be a factor which determines their abundance because I have as yet found none at all within the large terr. of Strix occidentalis on the entire E, S, & W sides of Whitakers Camp. Although terr. set up, apparently no objection to invasion occasionally by others. Territoriality may be restricted to the sequestration involving merely convenience & not in foraging & not aggressive maintenance of boundaries.

Later, bright moonlight, 5th male heard in tall yellow pine at edge meadows. Usual behavior resulting from my imitated hoots: at first kept on hooting steadily from high in tree & out of sight, gradually interested in my hoots, and began to move from perch to perch about me - still high. Then when I began to move about within its terr., became curious (or desirous of driving away a supposed invader) & descended to lower sm. trees where seen at close range. After $\frac{1}{2}$ hr., began to lose interest & moved again to high perches. Drawn down from these by my withdrawal to grove sm. trees & its following me thence. Called eagerly for 15 min. from open perch on ~~ho~~ stub of lg., dead tree, only 7 ft. from gnd.

Marshall, 1938

Otus flammeolus

Meadows Flat, June 12.

then from sm. branch near-te in interior young ponderosa pine; there shot - #432, male. Like the others it frequented a large black oak within its terr., & unlike them, its compound call consisted of only 2 syll.: boot, boop; etc. ^{midnight}

On way back to Whitakers, another male heard above rd. at W. side Sequoia Ranger Sta Station meadow. May or may not have been that heard back of the ~~station~~ station on June 10.

Whitakers Forest

June 13 Arrived at territory owls at end rd. at NW boundary. Male already hooting, & a Glaucidium whistling to S. Gl. soon stopped and Otus continued. Series of gurgling hoots given in flight as if in pursuit of female.

~~Several times~~ Several times heard slight mew-ing or whining cries at higher pitch than male & with prolonged downward inflection. These, I hope to prove, are made by the female.

June 15 Same place, but earlier, just at sundown. Male hooted several times while still very light. Followed so nd & found him sitting in densest part clump firs & 6' off gn. Sat still, resembled Screech Owls who come from hiding places & sit in shade untill dark enough to forage. This owl, however, soon began to fly about, into the higher trees & calling stopped. At this time the Glaucidium began calling close at hand & continued, causing extended silence on pt. Otus. Otus still there, answered softly my calls several times. (See under Glaucidium) Glaucidium apparently the dominant bird.

June 20 One heard at 9:30PM just across rd.

from Cedar Cabin, within game refuge, & within former terr. of #377. Heard at same time female Srix was baying near pool. I tried to approach the owl, but it, like #377, kept always ahead & almost beyond audibility. Probably because was outside own terr. & driven back by my hoots.

Marshall, 1938

Otus flammeolus

Whitakers, June 20

I expected to be able to follow it until it arrived in its terr., there it would stop & hoot while I would be able to observe it. However, it kept retreating at alarming rt. for no less than 500 yd., directly uphill, & was followed with gt. difficulty. Finally caught up in vicinity of lg. dead cedar. After remaining still for a while, was able to call it to me. Its hoots were very loud & penetrating, the loudest & fullest tones yet heard. Apparently great resonance. Was seen in open, close against trunk dead ~~ced~~-cedar, in axil of branch stub, 20 ft high. Silent. I began to call, & it flew about me in low trees from perch to perch looking intently. Looked most often upward; expected invader to be in higher trees, the normal place. Made slight rushing of wings when flew very close, and often noise as wings touched branches as flew thru dense growth of young trees. When peering about, used peculiar hunching motion, rotating effect, raising head & bending body forward. Found why this owl so wild & hard to approach - snapped twig, owl jerked forward & flicked wings violently - intolerant of approach of ground-travelling enemies. As long as I kept from moving around, owl flitted about looking for source of hoots. Definite terr. reaction. Perched directly in front & began giving loud full hoots but hoarse - the usual form when another bird near. Changed gradually into clear hoots. Head pointing up, posterior pt. body contracted, then sides of throat swelled greatly at each hoot. Throat greatly distended all time, even when not calling. Seemed as if it were amplifying hoots by bringing air-sacs into play, as indicated by compression of posterior flanks. Feathers of throat continually erect from its gt. glandular(?) enlargement. Long, silence, then last heard way up hill.

(Only one apparent insect flight noticed.)

Marshall, 1938

Otus flammeolus

Whitakers Forest, 5500 ft., 10 mi. NE Badger,
Tulare Co., Calif.

June 22 After dark, clear, calm, no wind. Entered screech owl terr. at end road at NW corner property. Remained silent until after arrival. Heard no owls. Then gave calls & in 10 min., 2, presumably males, were answering. I continued to call, & remained seated & quiet; soon both were in tree nearby, one calling louder & a major third above the soft tones of the other. The loudly-calling bird had been closest at the start, & may very well have been the "owner" of that part of the terr. as indicated by his dominant voice. Both birds withdrew after a while, their curiosity waning; and the soft-voiced bird was followed 75 yd. to the W. In a clump of young cedars next to a large black oak this bird & another silent companion were perched; on interior branches, 8' up & within 5' of each other. By this time the other male had arrived & had resumed calling from a fir near at hand. The two birds in the spotlight, I supposed to be a mated pair, the male hooting, the female silent. They made no particular actions toward each other; the male's hoots were clear, not the throaty sound given when two males meet. (Previously, when both males were together in the same tree, the other male had given the characteristic rushing hoots.) Both were very tame, ^{were} approached to within 10' and sat still in the light and peered at it & at me when I hooted. The male presently turned on his perch & flew higher & out of sight, where he exchanged calls with the other male for some time. The female (?) remained below & peered at me with that peculiar rotary motion ^{of the head} (in the frontal plane) so characteristic of all screech owls. As so often the case, she would usually look upward when I hooted; no ear tufts were visible, the plumage was compressed, giving a trim appearance, & the size was not noticeably larger than that of the males. At my closer approach, turned & leaned forward, then flew lightly to higher perch where seen. Feathers of head, especially top, compressed so that head

Marshall, 1938

Otus flammeolus

Whitakers Forest

June 22 - outlined by facial disks. Wide-eyed & alert expression from dominant features, the large, brown eyes, large white tufts extending up from cere.

Low-voiced male followed 75 yd. S. to cedar where sat in axil limb, 10 ft. up. Was unusual in that squatted on perch with feathers fluffed out & wings relaxed. Obviously a resting pose, didn't look about for insect, remained quite still, giving low, soft hoots involving only slight body contraction. However, noticeable feature of hooting was expansion of sides of throat - feathers would part due to expansion & show the apterium on each side of neck.

Both males of much less intensity of voice than the full-voiced bird heard on 20th.

Meadows Flat, 5000 ft., W. Base Redwood Mt., Tulare Co., Calif/

June 27 Left camp before dawn on morning collecting trip to Meadows Flat. Hooted for Otus all the way & encountered the two whose terr. I passed through, namely, the one 100 yd. W Sequoia Ranger Station, and the one with the most uphill terr. ~~ab~~ by the road S Meadows flat. (This is the terr. just E of where male #431 was collected.) It was fairly light when reached this last terr. and owl hooted only few min. but from the same trees as where heard last time.

Whitakers Forest, 5500 ft., ~~Le~~ 10 mi. NE Badger Tulare Co., Calif.

June 27 At dusk, at Terr. NW corner property, attempted to call up the two pairs usually there. Got several very faint hoots in reply from male up hill from road. Soon stopped. Later, a male answered from gully near road, but gave only a few rather faint hoots. Apparently the "hooting season" is waning.

June 28 After dusk, tried to call up owls in same terr. mentioned June 27. No response.

Marshall, 1938

Otus flammeolus

Whitakers Forest, 5500 ft., 10 mi. NE Badger, Tulare Co., Calif.

June 30 At midnight, heard from my bed on E porch of Sugar Pine Cabin, the persistent & measured hooting of Otus from somewhere to N.E. Probable 150-200 yds. away.

July 1 Same as above.

Redwood Canyon, 6000 ft., Sequoia National Forest, Tulare Co., Calif.

July 4 None heard in upper end Canyon nor within terr. of Strix occidentalis on saddle of Redwood Mt.

July 6 Again, none heard in upper end Canyon, although called for persistently.

Whitakers Forest, 5500 ft., 10 mi. NE Badger, Tulare Co., Calif.

July 9 Calm, clear; moon past 1st $\frac{1}{4}$.

Went to terr. at NW corner property in order to locate owls for flash photo. About 11 PM. Called up one male, hooting rather softly and not until a long time of calling up. Returned $\frac{1}{2}$ hr later with photographer, but owls not answering. Moon low, perhaps activities lessen late at night.

Later, after moon had set, called for Otus in terr. above "haunted house". After much calling, finally obtained ans. far up on hill N haunted house. Followed in succession of stops up this hill - owl would call only a few times in succession then a long silence (15 min) and resume 50 - 100 yd. away. Would invariably stop hooting at my approach. Never saw, although twice managed to get under tree where owl was. Toward daybreak, back down hill, my hooting brought the owl near me on two occasions as indicated by three or 4 hoots each time. At no time this night did the owl give the steady & prolonged hooting characteristic of its behavior several weeks ago.

Marshall, 1938

CATALOG
Otus flammeolus

Big Meadow, 7659 ft., Sequoia Nat. Forest,
Tulare Co., Calif.

July 10 - Although owls at Whitakers in the transition zone have ceased the major pt. of their mating activities, as evidenced by their discontinuance of regular calling, and their failure to answer imitated hoots; the owls at Big Meadow, in the Canadian Zone (Jeffrey Pine, Lodgepole Pine, Red Fir) are still at the height of the "hooting period". Males hooted steadily and surrounded me when I entered their territories (hooting), and also were attracted by imitated female calls and by the actual calls of one female. This is the first locality where a female has been observed and followed by her calls for a long period of time. Also this locality has the most amazingly large population of Screech Owls of any yet worked, surpassing even that of Meadow Flat, at 5000 ft. The cause for the still great activity among the owls is, of course the usual lag of the seasons in the higher zones - the dense population may indicate a population center in the Canadian Zone with a tapering off in Transition and Hudsonian.

Eight males & 1 female found in area about 500 yd. by 500. Included flat country along a slow, winding stream - open stand Lodgepole Pines and immense Red Fir, open bare ground; and a granite hill slope with very open stand Jeffrey Pine and rocks & manzanita beneath. Owls not restricted to either type.

Gibbous Moon - clear, calm. Observations from 9PM to 3 AM.

During supper thought heard male far to north. After supper, called up one male a few paces N camp. Soon another, then another came. All three apparently attracted by my hoots. Stayed high in Red Firs and hidden in interiors. Could not locate with flashlight. Soon had a forth. None in same tree at same time. All within clear hearing dist. Tried stunt of leading them along into low trees. Very successful. From the campfire called one that had been high in a Red Fir 60 yd away to a low Lodgepole Pine 15

Marshall, 1938

Otus flammeolus

Big Meadow contin. July 10

yd. away. Sat halfway up tree (30 ft up) and close to the trunk on a side branch; hooted continually. Clear eyeshine - same color as flash. Was collected and put into formalin - male #496. Worn plumage. Feathers on top head as if from entering woodpecker hole. 9 pm July 10.

30 min. later, one coll. as called from red fir - not hidden in branches but on open stub. Shot at long range - flew down to group young Red Firs. Another male called in high voice a few yd. to S. First was found 45 min. later sitting upright, feathers drawn down, ear tufts high and erect, on branch young red fir. Was caught and put alive into a box. Male # 494. 10 pm July 10

Subsequent history of #494:

Slightly wounded in one wing. Actions similar to *Otus asio*. Feigns injury when handled, tenses body and will not sit up when picked up, rolls over on side, closes eye, etc. When left alone, sits up normally, snaps bill, and runs off when approached. Next morning, of many water bugs & other insects, put in box (also a frog) alive & dead, ate one large kind of fly.

Photos taken by Woodbridge Metcalf, Univ. of Calif. extension forester and Ed Smyth, assistant farm advisor, Santa Barbara Co.

When held up in sunlight, closed eyelids to narrow crack, flew down to ground, hopped with wings outstretched to shade behind tree trunk. Put on sunlit twig of lodgepole pine. Hopped in criss-cross steps up the twig to trunk, where sat upright against trunk, elongated & with feathers compressed; ear tufts straight up & long due to contrast with rest feathers on head which were compressed. Blended perfectly with bark. Lids open when in shade. Next morn. died, feather fluffed out, ears down.

* * * * *

Silence from all owls for over hr. Hiked N camp 300 yd. in hopes of finding poorwills. Also

Marshall, 1938

Otus flammeolus

Big Meadow - Contin. July 10.

called ~~fer~~ with male O.f. call. Immediate ans. from clump Red Fir. in sm. hollow in gentle slope of granite, brush, & Jeffrey Pine. A high, quavering call, longer than usual, and $3\frac{1}{2}$ steps higher. Rising inflection. Evidently call of female. Almost as loud as male; not given in steady, successive intervals - only occasional, in ans. to my hoots. Entirely different quality from male. Muffled & whining. Male called from grove tall firs bordering cr. 75 yd. away. Called steadily in usual fashion. Apparently stim. to call by the calls of the supposed female. After one hr. patient calling, finally led him out in open a second time where finally shot at long range by yellow eyeshine alone - $\frac{2}{3}$ way up in open-branched Jeffrey pine. Male #493. ^{midnight July 10}

Female aroused again. Located tree several times - always high in tree & out of sight, probably sitting near trunk and behind branches as males usually do. Moved about within the one clump every 5-10 min. Shot once at pitch shine and once at knob on twig. Female continued to give the calls. Moved up into open Jeffreys up slope. Chased from tree to tree, often waiting 15 min. for next single call. Never allowed approach within 30 yd. and always remained concealed from long-range view. Moon bright, hence greater diff. in locating by shine. Very shy - char. of females of many sp. Finally another male drawn in by commotion. Either an 8th (counting each heard in a different place & time) or the 4th (the last one of the crowd heard all together earlier in the evening.) Readily caoo. from half-way up Jeffrey. Sitting on open br. and next to trunk. Shot at long range by yellowish eyeshine alone. Male #495. 2am July 11

Female again chased for several hr., finally stopped calling - nearing morning, moon setting; all owls silent (If there were a total of 8 males.)

Marshall, 1938

Otus flammeolus

Haskin's Meadow, Buck's Lake, 5150 ft., Plumas Nat. Forest, Plumas Co., Calif.

July 15, 1938 Moonlight, clear, calm. No otus found in all lodgepole pine, red fir, and Jeffrey Pine country in vicinity of Haskins M. 4 or 5 hrs. spent in usual procedure of calling & listening for ans. Many Horned Owls in region, if Otus were present, may have remained silent because of danger of exposing selves to Bubo. Very possible that Bobo would eat Otus. Also possible that Otus would not exist in terr. of Bobo as was assumed case in Terr. of Strix at Whitakers.

Entire country along highway from Buck's Lake 15 mi. Toward Oroville. 5000 - 6000 ft., Plumas Nat. Forest, Plumas Co., Calif.

July 16, 1938

A very comprehensive search was made by auto, stopping every few hundred yds along highway and spending 15 min. to two hrs. in attempting to call up Otus f. ~~Steps-were-made-so-that~~ Stops were made in groups close together so that entire supposed terr. could be covered, thereby taking care of the possibility that an owl might be on a distant frontier of its terr. Stops were made in all kinds of associations: Red fir (pure stands), lodgepole pine bordering meadows, aspens along streams, Jeffrey Pine on hillsides. Absolutely no answering calls were heard,. No owls of any other species were heard - Gt. Grey Owls were expected.

Time - from sunset to midnight.

Haskins Meadow on SW side Bucks Lake.

July 17, 1938

Three male calls heard in succession & in typical fashion at dusk among lodgepoles on S edge meadow. Given after I had made imitation Pygmy Owl whistles. Could not locate further. Record not certain - many cow bells ringing, some of identical pitch & quality to Otus flammeolus.

M arshall, 1938

Otus flammeolus

Eshom Cr. Campground, 5000 ft., W Base Redwood Mt., Tulare Co., Calif.

August 6, 1938

Upon learning from Ranger Volmer at Sequoi Guard A- Station that a camper at Eshom had a small live owl, this camper was sought out and the owl investigated. A man in an adjoining camp had felled a dead yellow pine snag for fire wood two weeks before and had found three young "Bill Billy Owls" in a cavity apparently at the base of the stump. Two were dead (I couldn't find whether they had been killed by the felling or whether they had died previously.) The third was alive although injured and was taken home to a lady in the camp. This lady was next interviewed as was also her small son who had fed the owl. He said that it had taken readily food of all kinds especially bread soaked in milk, beetles, and most of all, worms. It had died after a week in captivity and had been buried (this having taken place a week ago.) They said that it had brown eyes and was "Just a little Billy Owl." A man listening in said that he had seen one the night before near his camp at dusk.

The young buried owl was finally dug up and is now preserved in formalin. Juv. # 511. When washed, many of the body feathers sloughed off, but the well developed rectrices & remiges held on. They were colored like those of the adult birds; the juvenal body feathers were uniformly barred with grey & white as in a young Screech Owl. There was no indication anywhere of any rufous color.

Whitakers Forest, 5500 ft., 10 mi. NE Badger, Tulare Co., Calif.

August 6

In the evening, after dark, a walk was taken after dark to the terr. NE the "Haunted House". Here the owls behaved exactly as they had at the beginning of the season, except that calling was not so prolonged. The male with the triple note preceding his regular hoot, answered immediately from a clump of tall firs, and kept on calling

Marshall, 1938

Otus flammeolus

Whitakers, contin, August 6

for 15 min. in usual fashion. (Alternating single- successions of single hoots with successions of same preceded by triple note.) Moved twice - ended up in high yellow pine where remained concealed and in upper pt. tree.

During course of its calling, another male was heard several hundred yd. S and once a sharp whine was heard high in nearby pine which I took to be the call of the female. This whine was the usual $3\frac{1}{2}$ steps higher in pitch than the male call, was longer, and inflected downward. None of the owls were seen. At least, however, they are still calling, although not as much as earlier in season.

Why is this group of owls calling, whereas those at the NW corner of the property are altogether silent? Which group is representative of the entire population? They should now be observed in all the terr. in order to get an average estimate of their seasonal phase of their behavior.

August 8

No Otus called up in terr. at NW corner at dusk.

August 9

Dusk - at NW corner Whitakers. Couldn't call up Otus, however, did hear Strix calling several hundred yd. to S*, probably within its terr. on the S side Eshom Cr. I gave imitations of Strix for quite a while and soon a slight moan was heard from a yellow pine close at hand. Was high $9(3\frac{1}{2})$ steps above normal pitch for male call, very slight in intensity, and had double inflection: Up, then down again. Was of longer duration than usual staccato call of male. Was obviously an alarm note because it was given only immediately after one of my Strix hoots, and was invariably uttered sooner or later after each hoot. Given only singly, not in regular intervals. Also could be the usual call of female. Only collection

Marshall, 1938

Otus flammeolus

could determine with certainty whether or not this is the call peculiar to the female or merely an alarm note of the male. However, I shall consider it to be that of the female because on this night a true male call was heard several times nearby at the same time that the occasional moans from the unknown bird were heard. The male notes were heard in answer to my male & female hoots at a time when I had refrained from giving Strix hoots for quite a while. Wherever the male was, he remained absolutely silent when I began giving more Strix hoots, and the supposed female started calling again from the same perch where last heard. As to be expected of a female, this bird was quite hard to approach, and hard to follow because the alarm calls were given so sparingly. It moved on ahead of me, going from one clump of trees to the next, but always giving the little moaning sound "OOOOOOO" after each of my Strix notes. Finally I got close enough to see it as it sat out away from the trunk on a long horiz. limb of a sugar pine.

It gave a clear, light eyeshine, and sat for about a minute, looking from side to side and finally climaxing a session of "Hard looking towards the W", by flying suddenly & swiftly off in that direction. I had no gun at the time, & was unable to collect the bird.

August 10 Same place & time. No luck in finding female although a male was called up twice by imitated female hoots, . . . However, the male at each of these occasions became totally silent when I gave Strix hoots. This fact is certain because the bird called with typical male calls from the same spot after the Strix hooting had been ceased for several minutes and Otus notes were given. This also goes to prove that the moan note heard the night before was not made by this male bird but probably by a female.

August 11 ditto None, male nor female heard.

Marshall, 1938

Otus flammeolus

Whitakers Forest, 5500 ft., 10 mi. NE Badger,
Tulare Co., Calif.

August 13

Hiked over to Redwood Canyon after sunset. No Otus heard nor seen. Spent much time later in evening, after moon had risen, trying to call them up all the way back. Came back by way of old road taking a notherly di ection down from the saddle of Redwood Mt. None heard at all until the Whitakers boundary was neared and the owl inhabiting the terr. above the "haunted house" was heard in the dist. I followed it to its usual calling area where it called for a short time from a group of very high white firs.

It soon stoped calling, and I proceeded along old logging road from Haunted house and corral(shown on map) toward public camp. At the creek crossing, a male was heard in the terr. of the first specimen collected - male #377.

This new bird was close to the junction of road & cr. and was in a rather dense stand of mixed young conifers - not very high. It called vigorously & steadily and was easily approached. Soon it was attracted down near me and sat on a dead branch about 6ft. away from my head & hooted. I watched it for quite a while by flashlight. I couldn't determine the progress of the molt - the bird looked in normal plumage. It sat hunched slightly forward, looked about as usual, and as usual, no ear tufts were visible. I tried an exp. of giving a loud Strix hoot to see what his reaction would be. He immediately "froze" and remained perfectly silent. His only motion for about 10 min was to look down at me after a ~~heet~~.loud ~trox hoot. I noticed that when I first would turn on the light, an eyeshine was visible from the bird's pupil. But almost immediately, he would draw down his iris and only a very small pinpt. of light would be reflected. *Very tame & not in own breeding terr., young?*

Another male was presently heard farther up the hill, the one I was watching soon flew

Marshall, 1938

Otus flammeolus

Whitakers, contin. August 13

higher & back to his original hooting perch where he called from perfect concealment.

On the way back to camp & only 200 mi. S where last 2 were heard, still another male was heard, and still within the original terr. of #377 - which had been vacant almost all summer. Also a *Strix* was heard farther up the hill, and all *Otus* became silent.

August 14-15

The night of Aug. 14-15 was spent in bed under the clump of firs where last had been heard the *Otus f.* who ranges N haunted house. On the way out to this spot, the new bird of Aug. 13 was heard again, calling steadily in breeding season style from same stand young trees. Also the 2nd was heard farther up hill.

Although a moonlit night, owl was only heard at one occasion in the terr. where I camped. It was finally attracted by male & female hoots the grove where I was camped. Here it called with a very small voice and for only a short time. Towards dawn, it was silent, but suddenly an *Otus asio* began to call from the same tree where fl. had last been heard. The screech owl may well have been a wandering bird of the yr.; nevertheless, here was a striking overlapping both of range and of niche. (At this same time, a *Glaucidium* was also heard nearby.)

Big Meadow, 7659 ft., Sequoia Nat. Forest, Tulare Co., Calif.

August 15 Sunset to about 3:00 AM

A great deal of time was spent, covering several widely separated areas, and calling & listening for *Otus f.* All types of habitats were tried, all unsuccessfully. Finally the spot on the road to Buck's Rock Lookout, where the four owls were collected on July 10, was revisited. An owl was soon called up across the cr. 200 yd. S camp. It would start a given series of single hoots only with low, soft, mellow, uninflected *Otus* hoots, but would then increase pitch & intensity until it was giving a

Marshall, 1938

Otus flammeolus

Big Meadow, contin. August 15

very loud, barking hoot not at all like the call of Otus. Its habits were different also. It would stop hooting when I would turn on the light, it called from the very top of the tree. It would flush when I was still a long distance away, and would much later resume calling a long distance away. All together, it covered a terr. far larger than the normal sized one for O.F. Therefor, I conclude it to be some other sp., probably the Long-eared Owl.

Only two notes were heard during the entire night, which could safely be ascribed to Otus flammeolus. In the terr. where the female was traced by her occasional notes on July 10, two notes were heard which were identical with those heard on the 10th. They were given apparently in answer to my male hoots, but no amount of calling still made the female to the pt. of calling a third time, and she was not seen at all. On the 16th, several hrs. were spent in looking into cavities in trees for nests, None were found.

or roosting owls

Marshall, 1939

28.

Otus flammeolus

1½ mi SE Flagstaff, 7000 ft.
Cocconino Co., Calif. Arizona.

June 1, 1939

Arrived after dark on clear windless, cool evening with almost full moon. Camped in flat stand yellow pine at S. base San Francisco Pk., 1½ mi. SE of Flag. on highway, then to 500 yds N into pine forest. Railroad (Santa Fe) coming up from E-S, curving around N & W of camp, only 200 yds away. Trains coming up & down all into Cars. on highway making racket all night. Low Ridge ^{150 yds} NW Railroad track. At about 9 PM, after fixing light set out directly for W, crossed track after 200 yds, (where waited for train; then walked 150 yds W up ridge - rocky slope. Large ~~open~~ yellow pines. Called

Marshall, 1939

29.

Flagstaff, Ariz Otus Flammeus

for FS Owls, as soon as the engine of train had died down, I heard answer from $\frac{2}{3}$ way up large yellow pine 50 yds to S. Answered with single hoots usual pitch, quality, & tempo (2½-3 sec intervals). Went clear

$\frac{1}{2}$ way. Eyeshine pink-collected as sat on horiz branch of the open-branched tree. Walked straight back to camp to tell party to stay there for nite. On way called up 2nd ¹⁵⁰ yds SW camp. Got members of party to listen - ~~we~~ I tried to stalk. I saw after it had followed me near camp. Got other members of party to listen. Saw pinkish eyeshine from 50 yds. I saw form as sat, hooting in low, dense pine, tried to stalk to show part. Flew when I talked to them. While I had been stalking, it



Marshall, 1939

30.

Flagstaff, Ariz. Otus flammeolus

had answered my notes with single hoots, then preceeded by double 'grace' notes, then I had considerably lowered ~~and~~ pitch & changed quality toward breathy type.

^{1st} Prepared at 1657 immediately taking out contents of full stomach & saving in tissue paper. (about 1/2 hr. after coll.)

At about midnite started out again in same direction as before. (June 2)

[Members of Party: Sam Welles AB, VC, Oliver Bowen junior VC (geol), Frank Peabody AB VC - teaching assist in Pale - Thanks due to Welles for camping in timber on way to Meteor Crater.]

Now at 12:15 June 2, set out again toward W. Tried to call up 2nd ♂ - he didn't answer until I was right on top of him - 150 yds. SW camp. Started out very

Marshall 1939

31

Otus flammeolus

Flag - June 2

softly and only 1-5 notes every few min. I tried moving around - succeeded in getting him excited - followed me - gave ~~protest~~ breathy hoots: boot-oo, bootle - an interval of a major 3rd between 2 of grace notes & main hoot - then slighter yet distinct slur down again (1 major 3rd) on last syllable. Saw him fly into ~~a~~ pines 30' high (upper parts) then got him into the low bare branches of a similar pine within a rather dense clump. (Flight preceded by clattering of twigs which his wings would hit on the take-off.) Sat far out on dead horiz. twig (protected by clump) and about 4' above my head. Sat very still & ^{was} silent while I moved under him & hooted. Looked at the light. Jerked

Marshall, 1939

32.

Flag. June 2 ^{Otus} flammeus

tail down once, fluffed feathers. [Previously saw him before he stopped hooting, drew wings in toward body at each hoot.] Sat still for about 10 min - silent, plumage compressed - especially that around head - giving square-headed, big-eyed appearance. Eye-shine pinkish when farther away. Finally moved to horiz position & flew directly away. ~~Couldnt get him to answer any more,~~ As I moved away from his terr. he followed & answered about twice, then silent.

Crossed tracks to a meadow opening out from ~~the~~ a side canyon in the western ridge mentioned above. Called for O.f. all time. ~~Edge~~ Up where the canyon narrowed and the yellow pine and black (?) oaks became denser, got answer from ♂.

Marshall, 1939

33

Otus flammeolus
Flag, June 2

He called sparingly from a dense group of young pines. I heard a higher sharp single staccato note several times near him. Looked into a dense grove of sapling pines (where I had heard a twig rustle, and saw an Of. sitting on an horizontal twig in the interior. It was perched upright, then it would ~~lean~~ lean forward and shake so vigorously that it was almost a blur. It picked at its foot with its beak several times (held the foot up to its head as it stood on the other). Finally flew out of the clump, flicking its wings on the twigs again. Heard the ♀ no more. The ♂ was not hooting spontaneously nor for any length of

Marshall, 1939

39

Otus flammeolus

Flagstaff, Ariz., June 2.

time. Would answer my hoots with soft notes if I moved from place to place often enough. Would often come very close to answer although I never saw him. He perched sometimes in open-branched high yellow pines, often in dense groves of sapling pine, and in black oaks. I walked up the canyon, which was now very narrow & choked with small pines, and the ♂ was silent. About 75 yards farther, a ♂ answered, may have been same one. Called very sparingly & very softly - only single hoots. I followed it up the N side of the canyon & tried to see it as it called fairly steadily (as long as I answered from time to time) from a black oak. I circled the oak (among small pines)



Marshall, 1939

35.

Otus flammeus
Flagstaff, Ariz., June 2.

but couldn't see the owl.
#8 & couldn't be sure where
he was because of unusual
ventriloquial quality of hoots.
tried to lead him up
to open grove of tall yellow
pines on a flat. Another
male answered - noticeable
difference in pitch between
the 2 - (both calling together).
The 1st was $\frac{1}{2}$ -1 step higher
than 2nd. Shot 2nd male
as he sat high among
dense branches of middle-
aged, dense-crowned pine.
Clear pink eye shine. After
the shot, 1st ♂ silent but
heard two staccato ♀ notes
- at least of ♀ pitch,
but double - loop-loop
 $\frac{1}{2}$ sec interval for the 2 syll.
Couldn't hear or look locate
♀ farther. Picked up ♂
#658 & took out contents of
stomach.

Marshall, 1939

36

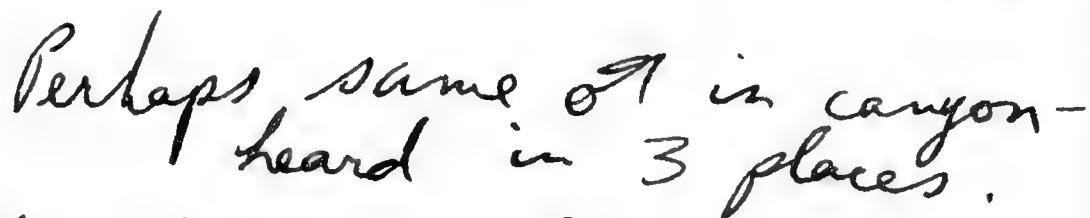
Otus flammeus
Flagstaff, June 2

[Several times, while chasing the previous ♂ with the slightly higher-pitched voice, had heard a low harsh squawk - something like a spotted owl.]

Walked 300 yds W along the top of the flat ridge thru open forest of yellow pine. Returned, & called up ♂ at head of previous canyon - may have been same high-pitched one. Very shy - altho came into pile above my head once. Then heard double squawk notes (Spotted or Barked Owl?) & O.f. called far away to NW - then silent. Tried to follow big owl - couldn't see it, altho it squawked several times from tops of dead pines. Walked back to camp - no more owls heard - getting light in E.

37.

Otus flammeolus
1½ mi. W Flagstaff, Coconino Co.,
Ariz., 7000 ft.



higher σ call

No AT's calling spontaneously
nor for long periods.

San Francisco Mt., Coconino Co., Ariz.
moonlit night, high wind. June 25, 1939
None found in dense Boreal forest on
E pk. - timber, pine, spruce, fir, aspen.

Marshall, 1939

38

Otus flammeolus

Village, South Rim Grand Canyon,
Co., Ariz.

July 19¹⁹ 1939

Left Public camp at 12:30
A.M. No moon, calm, clear.

Walked east to open groves
of tall yellow pine on gentle
slopes on ~~the~~ E. edge of village.

Heard ♂ on N side of
highway. Traced to small,
dense yellow pine in clearing
of artemisia. Notes of normal
pitch, tempo, & variations.

Flew across clearing to dense
young pine on edge - called
again. I approached within
50 ft. & he changed to

rustling note - husky, much
lower pitch, & with a distinct
added syllable: boot-opp foot-le

A minor 3rd - the last & 1st 2nd
syll. on same note. Located as
sat next trunk on horiz. limb
25 ft. up. Pink eyeshine. Called
steadily with protest ~~note~~ note.
I heard from the other side
of clearing a series of high-

Marshall, 1939

39.

Otus flammeolus

Village, Southern Grand Canyon,
Co. Ariz. July 19, 1939

pitched yapping cries, not
musical notes - like rick-
rick-rick - About 3 or 4; very
similar to ~~low~~ daybreak
cries of *Otus asio*. May have
been female - proper pitch.

I gave spotted Owl hoots &
♂ was silenced - sat still.

No sound from ♀. After 15 min
I hooted (O. f.) again, & ♂
hooted again. He at length

came low down in the
tree where I watched him
at close range as he sat
on bare horiz branch &
next to trunk. Fluffed out
feathers with gr energy
twice. Stopped hooting &

would look at me when I
squeaked. Sitting at about
50-60° L. Heard again

the ♀(?) cries. ♂ moved &
galled in tree 50 yd. away.

I followed & as I attempted
to locate him, heard wings
chick on twigs in yellow pine

Marshall, 1939

40.

Otus flammeolus

Grand Canyon July 19
overhead. Looked up with
light (♂ still calling nearby)
& saw sm. owl fly to
next tree. There I saw it,
sitting high & in interior &
on horiz. branch. Eyeshine
pinkish. Looked like FSU -
probably ♀ - silent - male
still calling. ♀ flew - Then ♂
returned, hooting (in flight) to
former perch. I walked
farther into timber & called.
♂ followed & hooted from
twig on side ^{bare} trunk of tall
pine. I attempted to see how
far the ♂ could be heard -
walked 75 yds - then he
stopped hooting. Went back
& started him hooting
again at same perch. I
walked 150 yds. back to
highway. Called there & ♂ stopped
calling - after 1 min heard twig
snap in high pine overhead &
♂ started hooting there again.
Walked 150 yds. down rd.
♂ still heard distinctly, tho
very faintly at 150 yds.

Marshall, 1939

41.

Otus flammeus

Grand Canyon, July 19, 1939

I hooted, same result - silence
then sound of wings on twigs,
then ♂ hooting above ^{my} head.

Walked 200 yds farther -

♂ barely audible at 200 &

hardly recognizable as an

owl - sound distorted as

it came thru trees. 2 more

150 yds. jaunts with results

~~to~~ as before & I was back

at the village, dawn breaking,

& the ♂ hooting in pine

near village bus garage.

I Last 2 jaunts may have
been 1st & 2nd ♂ - lower note.
That heard Spotted Owl
call once.

Edge of transition - soon
pine timber. Stapers off into
pinon - juniper.

Marshall, 1939

42.

Otus flammeolus.

Trail from Tenaya Lake to
Mirror Lake (10.9 mi. long),
Yosemite Nat. Park, Mariposa
Co. Calif. July 20, 1939

No moon, clear, calm at
dusk, began working forest
in flat country around S part
Tenaya lake for O.f. Almost
pure lodge-pole pine in dense
stands surrounding granite
areas or meadows. Not far
below subalpine forest of
mt. hemlock etc., but above
typical Canadian zone Jeffrey
pine & red fir. Spent about
3 hrs. - no results. Finally
arrived at an open grove of red
fir on a slope after crossing
a lot of granite country. Now
about 1/3 mi. down trail.
Red fir, W. white pine &
lodgepoles(?) around a pond. Open
forest of large trees. Exposed
slope (not a deep canyon). A or
calling when arrived. May have
started when heard my hoots.
farther up trail.

Marshall 1939

43.

Otus flammeolus

Yosemite, June 20, 1939

It came to nearby ledgepole & hooted in normal fashion - then protest note. Usual behavior except that this ♂ more curious (?) & perched lower and in the open - ~~one~~ on tips of bare branches of dead trees and in the open portions of live trees. 1st known to do thus. Shot at him several times with sling - no interruption in hoots. Another ♂ called farther away. I walked into the trees & called both ~~into~~ near me - one in one high tree, the other in another about 10 yds away. I remained silent while they each gave protest notes a while - then one flew into the other's tree & there was considerable clatter & banging of wings against twigs. Presently only one was hooting. Apparently an actual

Marshall, 1939

44.

Otus flammeolus

Yosemite, ^{July} June 20
conflict - territorial or other-
wise. The remaining ♂,
probably the 1st, still
followed me about very
readily & perched in
exposed places. I Built
a fire & Woody & I
slept an hour or so - then
tried to call up the owls
again - but with no further
success.

Next walked down trail
about a mile & arrived at
dense forest of tall firs on
the slopes surrounding
a wet narrow meadow
along a slow stream. Called
up 3 ♂'s in succession. All
hooting in unison & came
near each other, then spread
out again & 2 stopped
calling somewhat later. A
great diff. in pitch - intervals
me, sol, la, respectively.
I followed the nearest ♂,
which had the low voice.

Marshall, 1939

45.

Otus flammeolus
Yosemite July 20, 1939

It called in usual fashion
& gave protest notes ^{when} which
I approached it closely.

I saw it once as it perched
in a ^{young} pine (lodgepole) out on
the end of a foliated branch.

Also saw it once ~~in~~ high
in a tall dead tree & shot
at it with sling. Soon
called a short distance
away. While I was in

what seemed to be its
territory, it would
regularly use certain
perches in several certain
trees & return to each

from time to time. Woody
& I next hiked down the
trail for ~~1 1/2~~ mi. at least -
attempting to call up other
owls, but this ♂ followed
me for the entire distance.
Several times he followed
without being called. This, combined
with the gr. distance involved
seemed to show that this was
not a territorial reaction, but

Marshall, 1939

46.

Otus flammeolus
Yosemite, July 20, 1939

behavior due to curiosity
aroused by the lights & calls.
(A horned owl was calling
far away the whole time.)
The procedure was as follows:
I would leave the owl
while it still called - would
walk silently about 100 yds
or more then begin to hoot.
Immediately the ♂ would
become silent. In 15-30
sec., a rustling would
be heard in a tree above
my head; & in as long
an interval more, the ♂
would begin to answer.
This ♂ was led thus for at
least a mile thru the fairly
heavy timber of this canyon.
Then the trail rounded an open,
granite, south-facing knoll,
sparsely covered with manzanita
and an occasional stunted
red fir or Sierra Juniper - very
open; trees about 50 yds.
apart. The owl readily
followed us, even in this

Marshall, 1939

97

Otus flammeolus

Yosemite, July 20, 1939

open country & could be seen easily by moonlight or flashlight as it flew swiftly directly, & low (10') over the open places.

Its eyeshine also could be seen for a good distance. It was moving around more than usual; that is, it would not stay long in any one perch. (The bird, all this time, had never perched near enough for a shot.) It was seen for a moment in a solitary dead pine then it called from a dense juniper. I gave Spotted Owl calls hoping to cause the owl to 'stay put'. It became immediately silent, but I could not see it anywhere in the 20' juniper. ~~No~~

After $\frac{1}{2}$ mi. the trail again entered a fine open forest of large red firs on sloping ground. A ♂ was heard a long distance away & was not called in.

Marshall, 1939

48

Otus flammeolus

Yosemite, July 20, 1939

Farther on, however, a ♂ was called up. He answered from a huge tree about ¹⁵⁰~~50~~ yds. away. I walked over there & got him to follow ^{me} ~~the~~ back to the trail. Then he followed down trail into terr. of nest (+ last) ♂ (#8). Both called normally. Now getting light. The two began apparently to forage - called less and for shorter periods, & moved around much. 2nd ♂ seen once ~~to give~~ in insect-capturing flight - out from middle of tall fir. Both flying rapidly about in tops of ~~to~~ trees. Only half-way down trail when dawn arrived & just barely getting into what now seems to be the true habitat, namely, open forest of tall red firs & jeffrey pines - sloping gnd, not a deep canyon. ~~At dawn, we were~~ The two owls continued to call & fly around until fairly light. We were about

Marshall, 1939

49.

Otus flammeolus

Yosemite July 20, 1939

5 or 6 mi. from Mirror Lake at
this pt.

New things learned:

1. Habitat - a. not in subalpine
dense forests on flat ground.
(lodge-pole pine)

b. In red fir &
Jeffrey Pine belt in transition
Canadian zone - getting
much more abundant as
Transition is neared.

2. Territoriality - fight
between two males.

3. Curiosity or Terr.? - following
me for 1 + miles.

4. Differences in pitch of
♂'s calls.

5. One ♂ using very
conspicuous perches.

6. Foraging watched.

7. Call & answer readily even this
late in summer.

Marshall, 1939

50.

Otus flammeolus

Stawhile Spring, 5150 ft., Blue Mts.,
Columbia Co., Wash. July 26, 1939

Clear, windless, bright moon.

Camp in open valley, sloping to
E., in Canadian zone timber -
dense forest of larch, lodgepole
pine, red fir, spruce. Ad. &
young Horned Owls calling, squawking
& hooting in this valley. Started
out after supper (about 8:30 PM).

Couldn't call up any Otus f. in
the entire valley. Walked up ^(N) 1 mi.
to main road at top ridge (Skyline
Rd.). Attempted to find yellow
pine forest on S-facing slope
one mi. W ~~of~~ of this junction - but
the area was burned over. The
heavy forest of small, subalpine
trees, growing along the ridge, was
apparently uninhabited by Otus fl.
Walked about 3 mi. E. ~~to~~ along
Skyline Rd. (from the S-facing slope
above), calling all way. Forest
too dense, trees too small (apparently).
Finally, at 3 mi, (one mi. or more
past junction of road to Twin Butte)
found some good-looking stands of
red fir - huge trees, in open, park-

Marshall, 1939

51.

Otus flammeolus

Blue mts., Wash. July 26.

like groves. The upper limit of this habitat. All the surrounding co. was covered with the dense subalpine forest. This red-fir grove sloped to the ^{North} ~~West~~ and covered an area (at the top of the ridge) ~~ab~~ of only 5 or 6 acres.

Lay down here to rest. At about 11 PM, began to call again & got extremely faint answer after 15 min. Drew the ♂ out in

customary procedure. His calls typical. A second, with very much softer note, was heard several times - but didn't call steadily like 1st. 1st ♂ collected as called in high red fir. Good eyeshine (pink).

2nd ♂ heard no more - nor would it answer. 1st ♂ # 680, picked up (snapped bill loudly).

Moulting - only 2 tail feathers. Stomach contents taken out immediately. Time of collection - about 12.

Stayawhile Spring July 27 1939

Also a calm, clear night with moon until later. Got M.V.2. ^{car} ~~do~~

Marshall, 1939

52.

Otus flammeolus

Blue Mts. Wash., July 27...

, intending to drive it ~~to~~ ~~to~~ E along Skyline Rd., to where I had previously seen a fine forest of yellow pine. Hooper, Teris, & I set traps at Wildcat Springs (2 mi. W. Godman Spring Ranger Sta.) at dusk. Several Gt. Horned Owls were hooting in this deep Red fir forest, & one was attracted near me (seen by Teris). I was unable to call up any Otus there. After dark, we drove W to the place where ♂ # 680 had been taken the night before. I expected to call up the 2nd ♂ - but was unable to do so, although I worked the area for about 1½ hrs. I saw one flying squirrel. Perhaps the 2nd bird of the night before was not in a fixed territory; or was more or less silent due to the molting season; or perhaps a young indiv.

About an hr. later, Teris & I started out in the car, along the Skyline Rd. & in the direction of the Ranger Station. We went past the station, for a total of about

Marshall, 1939

53.

Strus flammeolus

Blue mts, Wash. July 27

9 miles from Stargawhite. We had stopped several times along the way, but no owls had been called up - very dense forests. However, at this point, 9 mi. NE Stargawhite Spring, the forest was an open one of lg. red firs, and was on a knoll. The forest was quite open, & there here for an area of several acres, and there were ~~many~~ several yellow pines among the red firs at the top of a knoll. We walked past this place, hooting. I thought I heard a ♀ cry farther on. Then we walked past the open grove again, & a ♂ answered readily, calling very softly at first. He soon was calling regularly & followed us around. He finally came into a very high & partially dead fir next to the road & was collected as he sat very high in this tree, & in an exposed position. Notes typical. No more were heard. Collected at about 12:00 #687.

Next we drove down ^(E) the road 1 mi., and came to another opening in the forest, where the

Marshall 1939

54.

Otus flammeolus

Blue mts; Wash. July 27

Trees were larger, ~~sparser~~ farther apart, & where there were many yellow pines - mingled with red fir. (Lodgepoles, spruce, larch, ~~absent~~ from this warmer & more exposed ridge. This was the second such locality visited that night, & here again, an owl was found. (10 mi. NE of Haysanville Spring, Columbia Co., ~~to~~ Wash.) It was called up - answered softly at 1st - at about 1 A.M. - actually the 28th. This bird called from a dense clump of very tall trees - standing in the open on a rather steep hillside facing S. The bird perched low in these trees & always in toward the trunk. It called steadily, & in the usual fashion - also gave very gruff protest note when I approached it. Its note was similar to that of the ♂ at Grand Canyon. It often hooted while in flight, & would always start with clear hoots after arriving at a new perch. It moved ~~for~~ back & forth from the clump to one or the other of 2

Marshall, 1939

55.

Otus flammeolus

Blue Mts. Wash., July 27

yellow pines, standing in the open. Its eyeshine was seen clearly from one of these trees at a dist. of about ~~50~~⁷⁵ yds. 65 yds. I was sitting on the hill above the dense clump, trying to locate the ♂ while he called from low in the clump. Suddenly, a new bird began to hoot from the very top of the tree in which the other was sitting. The beginning single notes of the newcomer were of typical Otus f. pitch & intensity, but soon they were raised & expanded into the full (bar) bark of a long-eared owl. In attempting to see the long-eared owl, I finally caught the ^{pink} reflection from the flammulated owl - who had become silent as soon as the long-eared owl had hooted. The ♂ Otus was then collected, #688 & nothing more heard or seen of the Asio. I picked the owl up (2 AM) & promptly fell ~~asleep~~ asleep - woke up a little before dawn. Apparently the habitat well-defined - local in this region, hence scarcity of Otus flammeolus.

Marshall, 1939

56.

Otus flammeolus

5 mi. NW Albee, Blue Mts., Umatilla Co.,
Oregon July 30, 1939

Camp in flat, & very sparse forest of yellow pine. Long, low ridge (over saddle of which the highway came) to the NE was more heavily wooded on the S slope. Longhurst & I went to the ridge, & as soon as we hit the timber (pure yellow pine - open forest - many clear areas -) on this ridge, Longhurst heard a ♂. He believed that it had been calling previous to my hooting. Longhurst heard it before I could hear anything myself. We approached it, as it called from very high in an immense yellow pine standing at the edge of a little clearing. This tree was about 50 yds. from us. Longhurst maintained that the bird was at least 200 yds farther on. It was had a note which was almost impossible to place - probably due to the height from which it came. After covering quite a bit of the adjoining

Marshall, 1939

57

Otus flammeolus

Blue Mts.

5 mi. NW Albee, Umatilla Co., Ore. July 30, 1939
terr., I concluded that the bird was
in the above tree & I soon
caught the passing glint of its
eyeshine. Presently it flew when
Longhurst & I ~~was~~ tramped
about too much in the dry
leaves. It soon called from
some lower trees farther on.
It was collected from 10'
up in a young yellow pine. Sitting
upright on a horizontal limb near
trunk. Previously, had flown
around us quite a bit &
had come very close several times.
It called steadily, but gave
no protest calls. A horned
Owl ~~had~~ was hooting, all
this time, far to the S.

Clear, calm, moonlit night.
No other owls found in several
square miles of V forest. Longhurst
thought he heard ~~at~~ more than
one when the 1st was heard.
It was taken at about 10 PM, #693.

Marshall, 1939-40

58.

Otus flammeolus

Whitaker's Forest, Tulare Co., Calif. Nov. 17-19

None found in any of the territories - couldn't see any in terr. at dusk. - couldn't call up. Good weather - warm "Indian summer" - no snow. If owls did remain in Calif. during winter, I might expect them to 'stay up at Whitaker's in such contin. of summer weather; i.e. would not be down in the oaks. Didn't work oak country, so can't prove.

16

Mt. St. Helena, Lake Co., Calif. May 17

Whitaker's Forest, Tulare Co., Calif. June 4

Arrived with Ralph Waltz at dusk. Looked for Of. at about 9 pm. No moon; calm.

Walked from camp along old logging road to haunted house corral (terr. C). None answered until arrived at C. Then only faint hoots from a male; close. Heard a few more times up on the hill above haunted house. Couldn't get it to respond steadily. Perhaps because of the noise Ralph made in walking.

Only one male heard.

Whitaker's general region

June 5.

Ralph let me off at Meadows Flat at dusk. Walked up road toward terr. P. Couldn't call up Otus because a pair of spotted owls were making so much noise. Decided to get a spotted owl; in course of so doing, heard two Otus

Marshall, 1940

Otus flammeolus

Whitaker's Forest, 5500 ft., W slope Redwood
Mt., Tulare Co., Calif. June 5, 1940

in open yellow pine grove by gulley with big boulders at terr. L. Hooted continuously tho softly even while the two spotted owls were barking. For spotted owl account see *Strix occidentalis*. After I collected a spotted owl I returned to the road at the south border of terr. C. Called an otus from C. to a large black oak at the roadside. Shot at it, but only got a couple of feathers. It was sitting on a high branch and in full view. Walked on up the road and called up a male in terr. R (a little south-east of same).

Walked back to camp via Meadows Flat, Sequoia Guard Station. Called up a male in terr. N, one $\frac{1}{2}$ in flat pine country $\frac{1}{2}$ way between Meadows Flat and Meadow at the guard station. The last bird heard that evening was called up north of the guard station, about 100 yards north of terr. H.

From this account it can be seen that the owls are present in numbers comparable to those in 1938; that they are spaced in about the same way, but not necessarily in the same identical areas.

Marshall, J. T., Jr.
Arizona: Coconino Co.
May 23 - June 24, 1939

Marshall, 1939

General Comment

3 mi. N. Seligman, 5700 ft., Coconino Co., Ariz.
Camped here late in aft. May 23rd 1939
of 23rd. Camp in a little flat
grassy valley running N. to low
ridge at SE corner of mesa. This
low ridge was lower coconino which
contained many tracks. Upper
Sonoran - arid. Yuccas of several
kinds, cactus, sparse chaparral
of sage, many annuals, and
an unusual variety of large and
beautiful flowers - Penstemon, Oenothera,
etc. Also a scattering of juniper.
very rocky.

In the grassy valley were
Lark Sparrows (about 6) and several
Eastern Meadowlarks - with clear,
plaintive whistled song - not gurgling,
loud & throaty as in W. Meadowlark.
Also had different call notes.

Chased a wood pewee from
bush to bush with slingshot.

After dark, coll. poorwill # 650 ♂
from rocky side of mesa. Heard
about 5 altogether - no moon,
all poorwills stopped calling $\frac{1}{2}$ hr.
after dark unless I passed thru
their own terr. & whistled.



Marshall, 1939

General Comment

3 mi N. Palignan, 5700 ft., Coconino Co., Ariz. May 26.

Early in morning coll. a Gray Vireo - several around camp - often in pairs, ♂ pursuing ♀. In absence of high trees for song perches, the ♂'s sang beautifully on the wing. V Solitary Vireo - but with more trills & runs & phrases in closer succession.

Hiked for 4 mi, along S face of mesa. Saw 2 Hummers, shot one with sling as sat on top juniper - couldn't find. It was green, with a very black gorget. Saw many rock wrens around out-crops in the side canyons. Each little side wash

opened into a little brushy & grassy flat where Bewick Wrens could usually be found, ^{also Say's Phoebe's.} Saw 2 white-throated swifts and a Swainson ~~tail-tailed~~ Hawk overhead. Saw 2 orioles (Scott?) in junipers, also several mockers. In one rocky

side canyon were two pewees. Back at Camp - noted how many of the song birds sang on wing - owing to the

Marshall, 1939

General Comment

3 mi N. Delizman, contin.

May 26

absence of high song perches:

Grey Vireo

Lark Sparrow

Oriole (Scott?)

Mocker

horned Larks

Eastern Meadowlarks

Saw 2 pr. Cassin
Kingbirds & 1 pr.
Say's Phoebe N of
camp.

Desert Sparrows
& Mockers near
camp.

On moonlit evening, May 27
coll. 2 poorwills from high on
mesa, # 652 from the steep, rocky
S face (in sparse juniper stand),
653 from brushy sloping rim -
sloping down to the north. Heavy
brush here (some member of rose
family, and juniper). No owls
found. Total of about 9
poorwill heard.

Drove S camp on May 28
way to Aubrey Cliffs. Passed
across open green valley & farm.
On farmyd. a flock cowbirds.
Just past it, saw a Golden
Eagle - soaring and flapping low
over brushy wall at side valley.
Pursuing him were 2 small &
dainty Buteos - not red-tail,
& not white under leading edge
wing like Swainson. They have

Marshall, 1939

General Comment

3 mi. N. Seligman Contin May 28
been Red-shouldered, or Broad-wings.
Saw Calif. Quail in a brushy side-
wash.

Birds of 3 mi. N Seligman May 23-28.

Hunting in air:

Golden Eagle
Swainson Hawk
2 little buteos
White-throated Swift

On grassy valleys:

Eastern Meadowlark
Lark Sparrow
Horned Larks Cowbird

In rocks on mesa:

Bobwill
Rock Wren

In Junipers:
Mocker

Oriole (Scott?)

Grey Vireo

In Brushy canyon mouths:

Pewee

Day's Phoebe

Cassin Kingbird

Calif Quail

Bewick Wren

Hummers

Denser brush on mesa slopes: Bobwill

Marshall, 1939

General Comment

Top of Aubrey Cliffs, 6500 ft., 15 mi. NW Seligman,
~~Coconino Co., Ariz.~~ May 28
Coconino Co., Ariz.

Stopped here for lunch while
on prospecting trip with truck.

Rich-timbered Upper Sonoran - good
soil - heavy forest of juniper &
pinon, grass and luxuriant
wild-flowers in clearings. Top

of a high-land, fairly level country.

Hunted with slingshot - many
W(?) Bluebirds - found one
nest in hole near bottom of
juniper - several young inside
calling. Chippys abundant -

1 collected for identification - singing.
Mockers & Grey vireos abundant
& singing, as were Black-throated
Grey Warblers (all these in the forest).

Heard 2 Hairy ~~perhaps Downy~~
Woodpeckers, & a Bewick Wren
(singing). Several White-breasted

~~White~~ Nuthatches heard & seen. ^{screech}
Vireos attracted very close by owl
calls - in pairs. Several

Ash-throated Flycatchers seen - alarmed
about nest-tree. Of particular
interest were the grey Flycatchers, which
were abundant (see species acc't.)

Marshall, 1939

General Comment

10 mi. N Ashfork, 6000 ft. Coconino Co. Ariz.
moved here to prospect - May 29
new exposures of Coconino.
For the most part, heavily
timbered with Pinon & Juniper
& V Aubrey Cliffs. Flat
country cut up into rolling
hills & broad flat valleys,
all heavily-wooded Upper Sonoran.
Openings in forest grassy -
stream-bottoms with undergrowth
& many broad-leaves.

Clear, warm weather.
1st night, hunted down road
from Camp about ~~3~~ 1 mi.
for Screech Owls. Coll. 1 &
heard another (which I attracted
around camp).

May 30
Prospected thru rolling juniper & pinon
country for about 4 mi. Saw
or heard: 2 hairy Woodpeckers, 5
pairs Grey Vireos, 4 pairs Grey Flycatchers,
8 Chippies, 5 prs. Black-thr.-grey
Warblers, 2 Cowbirds (at camp),
2 White-br. Nuthatches, 4 W. Bluebirds,
(Found nest of Bewick Wren with
3 or 4 young in hollow juniper at camp).

Marshall, 1939

General Comment

10 mi. N. Ashfork, Conti

5 Linnets, 2 Rock Wrens, ^{May 30} 5 Mockers.

In evening, coll. 1 Screech Owl 1 mi. W camp. Saw 1 porcupine; heard 2 Poorwills & 1 Horned Owl.

Prospected along ^{May 31} creek 2 mi. S camp. Saw Black-headed Grosbeaks, Linnet, 2 W. Gnatcatchers & one dark-throated large green Hummer.

In the afternoon, prospected 5 mi. W camp, where a 2 thrashers (*Toxostoma*) were seen in some sage brush. Bush-tits &

Titmice were present in the Pinons & Junipers. ~~as were~~

A Swainson hawk was also seen. In a brushy clearing,

several Hummers ^(sounded like *Selasphorus*) were seen.

Broke sling ∴ couldn't collect.

1/2 mi. W Flagstaff, 7000 ft., Coconino Co., Ariz. June 1-2

(see *Otus flammeolus*) Yellow pine forest, with some Black Oak. About 7 *Otus flammeolus* found, & 1 Screech (or *Asio wilsonianus*) was heard.

Dawn: Nighthawks, choruses of Violet-green Swallows before light, Robins Mockers singing later. Saw 1 Callo.

Marshall, 1939

General Comment

1 mi. N Meteor Crater, Coconino Co., Ariz. June 2-24

Camp on lee of sm. butte
in middle flat, open prairie.
Overgrazed - almost no grass, &
only a few low shrubs.

Nighthawks common, 1 mocker,
a Say's Phoebe, several Horned Larks,
and a few Buteos are total
for birds (except one large owl
which alighted at camp one
night - about the size of Asio.

Mammals: Porkey ^{near lone} 2 junco's
on near butte, at least one
pr. Coyotes, several antelopes,
several wood rats (in camp - ~~just~~
one as ate potatoe - had bushy
tail.). Many Collared & other lizards.

Went ^{to Canyon Diablo} swimming in a
stream, ⁱⁿ the bottom of a deep
canyon 2 mi. SW of crater.
Lined with willows - eroded
cliffs with nest niches for
Black & Say's Phoebes, large
flock cliff swallows. On large
poplar - 3 young horned owls
able to fly. (Killedeer) Also saw:
Bewick Wrens, Ash-throated flycatchers
pr. Coyotes here (on ^{plain} ~~meadow~~ above tracks along stream).

Marshall, 1939

1 mi. N Meteor Crater,

Co., Ariz.

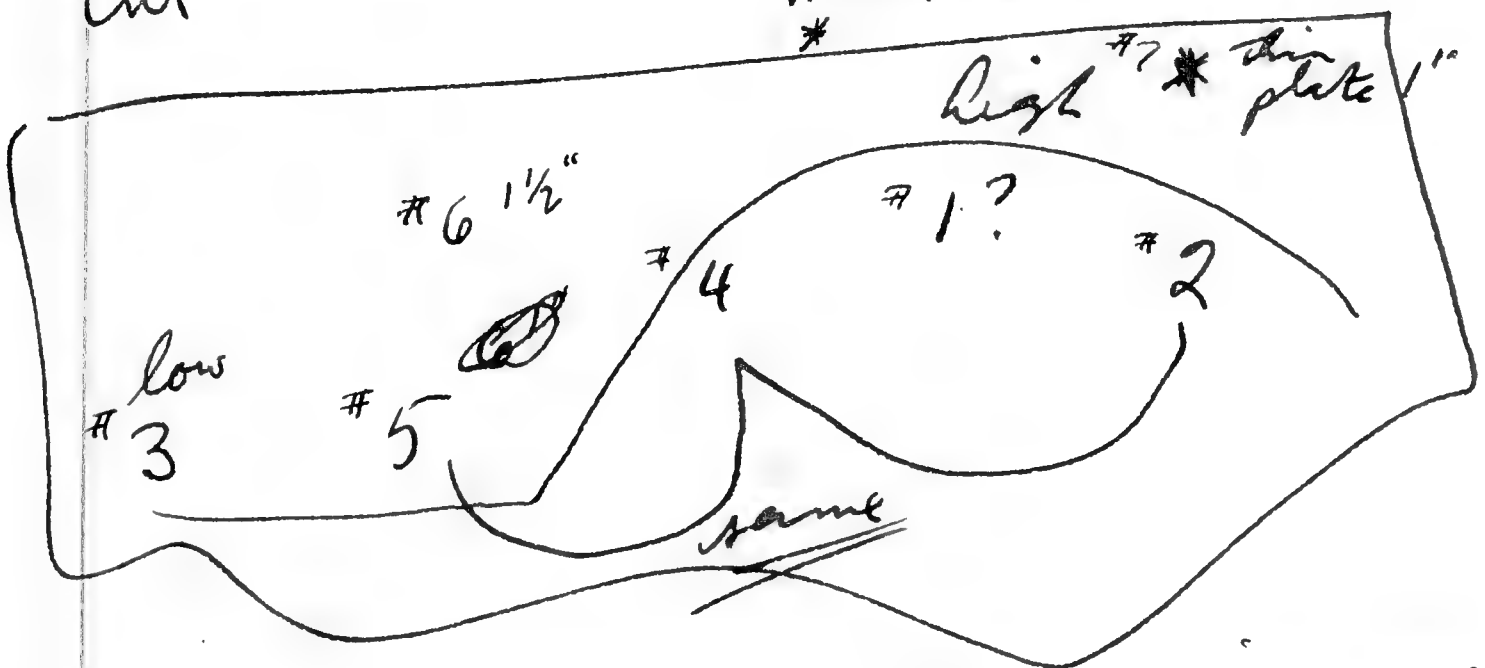
Ralph Goeglein, whose June 2-24
parents run the concession at Meteor
Crater, knew an old indian or
early settler (?) who had been
here for 50 yrs. When he
had ^{1st} come, there was bunch
grass 6' high over this entire area.
Now there is almost no grass,
a few scrubby weeds. The
land has been overgrazed by
sheep & cattle, & the soil has
been washed off. Just recently,
the area has been sold to
a large Texas cattle ranch,
which will restrict grazing
here until a good stand of
vegetation; then will use it
for a winter range only.
Looks like a good step.

Nighthawks were abundant in
the evenings at the well, several
miles S-E camp - foraged silently.
A pet collared lizard was usually
seen & fed flies at the quarry
in the middle part of the day.

June 13 as 2 x 4
 June 13 11 N 5 a whole school 5 1/2"
 June 13 11 N 4 Punk 6"
 June 11 11 N 3 very good 4 3/4"
 Fri 9 11 N 2 Best 6"
 8 11 N 1 6 1/2"
 fairly good
 1st level above 2 x 4 2 levels below 2 x 4

Chuck-ca-too
 me me do
 Cut-ta-coo

Otus asis -
 6 notes
 Plate & bow 4"



11 F - 1939 June 18 jaw + mace...
 11 Q 6 Palate June 19 weathered skull - top up other
 11 Q 7



Empidonax :

~~Norio~~
~~Nighthawk~~
~~Lark~~
~~Robin~~
~~Coyote~~
~~Rat~~
~~Antelope~~
~~Hawk~~
 NVC
 1936
 Hutton Vireo
 Tsü ee
 do me do

Chee tick; chee thick -

almost 3 syll - rough,
harsh - almost

identical ~~like~~ ^{with} Cassin Purple Finch.

dark whit

Song: ~~too~~ thick, cheetick

Birds of Shigman:

- Golden Eagle
- 2 little Crows
- Swainson hawk
- Wrenwill
- Hummers
- Wewee
- Cassin Kingbirds
- Dark Sparrow
- Calif. Bewick Wren
- Calif. Larks
- Calif. Meadow Larks
- Yellow Vireo
- Mocker
- Rock Wren

Aubrey Cliffs

- Empidonax
- Chippy (coll)
- Bluebirds (nest)
- Hairy Woodpecker
- Bewick Wren
- Bl-thr-gr. Warbler
- Asp-thr. Flycatcher
- Nuthatch
- Mocker
- Merio
- Flag - Nighthawk
- Six or Asia
- F P Owl
- Dawn Chorus of Violet gr
- swallows
- Robin
- Callio
- Mocker

Ash FK -

- Screech Owl
- Wrenwill
- Robin
- Bl-thr gray
- Hairy Woodpecker
- Gratecatcher
- Cowbird
- Bush Tit
- Swainson Hawk
- Nuthatch
- Horned Owl
- Linnet
- Vireo
- Mocker
- Bl-thr. gray Warbler
- Bewick Wren
- Bluebird
- Empidonax
- Chippy

Marshall, J. T., Jr.
Washington trips
July 24 - August 1, 1939

Marshall, 1939 (Washington Trip
July 24 - August 1)

General Comment

16 mi. N. Redding, Shasta Co. Calif. July 24
Stopped to spend night in ~~canyon~~ valley
opening W. into Sacramento R. ~~On the~~ and
~~opposite side~~ opposite the Shasta Dam
sight. Working on dam all night with
search-lights - much blasting.

Camp in lower fringe of Transition,
on a NW-facing slope. Fairly heavy
2nd growth yellow pine forest with large
black oaks. ~~Worked~~ for Otus flammeolus -
none found - too much noise.
Did find a pair of Otus asio at the
edge of the forest - where manzanita &
Upper Sonoran broad-leaves replaced
transition timber. No flying squirrels
heard. Collect the ♂ Otus asio, #674
moulting, from a digger pine.

Milk Creek, 16 mi E Walla Walla, Blue Mts.,
Columbia Co., Wash. July 25-26
Camped in this deep, heavily timbered
(transition) canyon ~~running~~, ch. flowing
W towards Walla Walla. Doug fir,
yellow pine spruce, giant alder(?).
No Otus found. Several Horned owls
hooting. In morning (26th) heard
some kind of vireo singing high in the
alders. Something like Warbling, but

Marshall, 1939

General Comment
Mill Creek, Wash. July 25-6

much louder, sweeter, more varied.
Perhaps a Red-eyed Vireo.

7 mi. E & 5 mi. S Dixie, 4300 ft., Walla Walla Co. Wash.

Found MVZ Camp here at July 26, 1939

noon: Johnson, ^{Hofmeister} Lewis, Chatterin, Hooper,
& Longhurst. They had trapped here
the evening before, & today, Hofmeister
took a ♂ Golden-crowned Kinglet.

Weather hot; calm, clear. Densely
forested country near the summit of
the Blue mts - which are more like
rolling hills than mts. Heavy
forest of Englemann spruce, Doug fir,
red fir, larch. Some yellow pines
lower & on exposed warmer slopes.
Spring in every canyon. Lush
almost tropical green undergrowth of
vines & herbs. In the afternoon

I collected around camp the following:

Chestnut-backed Chickadee - very abundant

~~Black~~ Black-capped Chickadee - one only seen

Golden-crowned Kinglet ♀ - common

Hermit Thrush ~~juv.~~ - only one seen.

I heard other birds, & saw them:
Red-breasted Nuthatch

Mt. Chickadee - in song - very abundant.

Junco. - common.



Marshall, 1939

General Comment

- Dixie Walla Walla Co., Wash. July 26 (contin)
Audubon Warbler - a few

Heard a Papsucker.

The small passerines were going about in large flocks - moving slowly thru the woods & high in the conifers. These flocks included Chestnut-backed & mt. Chickadees & Golden-crowned Kinglets in about equal numbers. Their abundance was probably due to the presence of many 'birds of the year'. Junco &

Chippys were around the openings in the dense forest. ~~Transition~~ Canadian 3.
No response to Popping owl calls.

Stayanville Spring, 5150 ft., Blue Mts., Columbia Co., Wash.
Clear, calm, cold. Camp in July 26, 1939
high, S-facing valley, very heavily
wooded with a dense, subalpine
forest of Larch, spruce, fir, lodgepole pine.
Trees not large, except for occasional
towering red-fir, frequented by crossbills.
This was boreal zone - above yellow
pine & Doug fir - open forests of
which had been seen on exposed
slopes farther north. Probably Canadian
or else Canadian + Hudsonian. No
large clearing, few broad-leaved trees,
not enough "edges" where birds

Marshall, 1939

General Comment

Stayawhile Sp., July 26, (cont.)

or mammals would be common. There was an opening in the forest ^{willow-lined} opposite camp - where the ^{cr.} ran across a little wet meadow. Hall & I set traps along this meadow & farther downstream among the willows. 60 traps were set - Hall used oats + peanut butter - & used ^{gt} care in choosing good places to set them. For water-shrews, he chose the places where they would have to go, in order to get up & down stream. We found *Microtus* runs with freshly-cut grass & set traps along them. Also some at the sides of logs & in little trails ~~through~~ ^{luminant} the forest undergrowth. We used red cloth markers, which were placed so that they could be seen from the adjacent traps. No interval was used; ~~merely~~ rather, advantageous localities were sought.

~~July 27~~ ^{see Dr. Hall's notebook} Take water shrew - in ^{mossy} trap set near a little hole in the ^{bank} mud at the water's edge.

~~2.~~ Several large *Microtus* - in the traps set along their runways in the little meadow.

Marshall, 1939

General Comment

Stagawhole Spring, July 26 (Cont'd)

Some Red-backed mice in the traps set along little trails & openings in the ~~herbaceous~~ ^{olive-backed thrushes} forest undergrowth. Heard whistles of ^{in willows}.

Several Peromyscus - in the traps set on the forest floor & about logs.

In the moonlit evening, I hunted Owls & Glancomys.

Horned Owls were calling up & down the valley; glancomys were heard & seen in three different

localities along the road leading to camp. ^{Several Coyotes were baying & I got them to answer, imitated howls.} No stus fl. were found in the dense forest around camp; but 2 were found several miles away (see sp. accounts).

July 27

Went around trap-line (see above).

Early in morning, hunted on W slope of valley, in sunlight. Birds in abundance, the small ones in large flocks: ~~Red~~

M. Chickadees, Golden-crowned Kinglets, & Townsend warblers, & Red-breasted nuthatches.

~~Also~~ Saw several warblers of lemon yellowish color, dull - & with white eye-ring. May have been vireos. They were in the few clumps of broadleaved plants. Heard several hairy woodpecker, a flicker, many chickarees & redcrossbills.



Marshall, 1939

General Comment

Wagawhile Spring, July 27, contin.

Red Crossbills flying high over-head, calling "kip" - in small flocks of 20 or more & often & 2's & 3's. Would alight in highest red-firs - on highest twigs.

During the morning, made short trips on the E valley wall thru the heavy timber - whenever I heard anything. Coll. a hairy woodpecker, & 2 Canada jays near camp.

Kinglets, Mt. Chickadees, Aud. & Hermit Warblers common. Juncos, Chippies, & Chestnut-backed Chickadees, scarcer. Heard flickers several times.

In Evening, set Trap at Wildcat Spring, 2 mi. W. Godman Spring Ranger Sta., Columbia Co., Wash. (July 27).

Hunted here for owls; heard many olive-backed thrushes whistling, saw several & after a "conversation" with one, got him to sing in breeding season style. Much sweeter & more polished than r.-b. Thrush.

The low whistle is given at higher pitch than that of r.-b. thrush. These

Heav were in dense Red-fir forest & among broad-leaves at the forest edge. Later heard 3 Horned Owls. Next drove to several localities - looking

Marshall, 1939

General Comment

Wildcat Spring, July 27 Contin.
for Otus flammeolus. Coll. 2, both in
open groves of yellow pine. None in
Canadian forest.

Went over trap line. Traps July 28, 1939
had been set at 20 yd intervals
among the herbs & broad-leaved
trees at the upper edge of the
red-fir forest. Above this, the ridge
& was barren. The traps were set
along logs etc - no run-ways
were seen. Only 25 were set &
I got from them about 8 Peromyscus
& 1 Entomias, #685 ♂.

Birds were here in great numbers,
as this place was a true "edge" -
with the heavy red-fir forest
ending abruptly near the summit
of the bare ridge & with deciduous
thickets along the edge of the forest.
I heard ^{4 or 5} Olive-sided flycatchers,
robins, varied thrushes (singing
from high in the red firs, hairy
woodpeckers, Williamson sapsuckers,
red-breasted nuthatches, chickadees, Golden-
crowned kinglets, and Olive-backed
thrushes. All these were in the
red-firs. Then at the edge of the
forest, there were Audubon warblers,

Marshall, 1939

general comment

Wildcat Spring, July 28, Contin. ^{Black-headed Grosbeaks, Tanager}
Townsend warblers, juncos & chippys

Later, in the morning, back at Stayawhite Spring - heard Evening Grosbeaks.

In the evening afternoon, drove from Stayawhite Spring to Godman Spring Ranger Sta. with Dr. Hall. On the way we cut down some hollow trees but found nothing. Saw many flickers, juncos. In a red-fir grove thru which the road ran, a large hawk or owl flew swiftly across the road. I thought it was a goshawk, but Dr. Hall thought it a Horned Owl. Flocks of juncos & warblers were seen around the edge of a clearing 1 mi. W of the Ranger Sta.

In the evening, Dr. Hall & I set traps around the edge of a clearing 1 mi. W Stayawhite Springs & I shot a Lasionycterus in an opening in the red fir forest. We saw a Vaux's Swift fly swiftly along the ridge.

1 mi. W Stayawhite Spr., 5300 ft., July 29
Columbia Co., Wash. Picked up 9

Marshall, 1939

General Comment

1 mi. W. Stayawhite Spring, 5300 ft., Columbia Co., Wash.
traps set around a clearing in red fir, larch forest. July 29.
4 ~~mus~~ Peromyscus & 1 red-backed mouse.

The red-backed mouse & 2 Peromyscus were in one trap (loaded by Ws. Hall) which had been set among the herbs ~~of~~ covering this little opening. A tenth trap had been set at the edge of a manzanita thicket; it contained only one Peromyscus.

Next collected birds on an extensive 5-facing brush & willow-covered slope.

Saw 6 Calliope Hummers, 3 Wright Flycatchers, 6 Flickers, 2 Crested Jays, several Robins, black-headed Grosbeaks, juncos, Audubon Warblers. Heard 2 Warbling Vireos. Collected 2 olive warblers and a freshly-moulted Calaveras Warbler (#692 imm). Heard 2 Fox sparrows & coll. one #690. Collected a junco (#689) & a Gambel Sparrow (#691). Shot several times at a Vamp. Swift. Shot at a Flycatcher(?)

Marshall, 1939

General Comment

Wm W. Hayawhale Jr. July 29.

perhaps a Nuttallbarnis, but
couldn't find it. Returned to
Hayawhale spring, where Chatterin
coll. several Mt. Chickadees.

On the way, tried to shoot
a Ruby Crowned Kinglet (silent)
high in a dense fir grove.

Summary of Birds of Blue Mts.
Wash.

Open yellow-pine (& Red Fir) Forest (transition)

Otus flammeolus

Asio wilsonianus

Dense forest of Larch, Red-fir, Englemann
Spruce & Lodge-pole Pine (Boreal)

Bubo virginianus

~~Olive-backed Thrush~~

Hermit Thrush

Hairy Woodpecker

Varied Thrush

Chestnut-backed Chickadee

Mt. Chickadee

Black-capped Chickadee (only 1 seen)

Golden-crowned Kinglet

Oregon Canada Jay

Crested Jay (only 2 seen)

Audubon Warbler

W. Tanager Ruby cr. Kinglet.

Williamson
Woodpecker

Marshall, 1939

General Comment

Blue mts., Wash.; Contin. (July 26 - July 29)

Olive-sided Flycatcher Cassin Finch

Red-breasted Nuthatch Goshawk?

Townsend Warbler Hammond Flycatcher

Red Crossbill Evening Grosbeak

Mangavita Chaparral

Fox Sparrows

Colville Warbler

Wright Flycatcher

Willow Thickets - open slopes

Junco Warbling Vireo

Yellow Warbler (?)

Calliope Hummer

Gambel Sparrow (migr?)

Black-headed Grosbeak

Clearings: & Edges of Clearings

Puffed Grouse
(coll. by Hooper)

Junco

Chippy

W. Bluebird

W. Bluebird

Vaux Swift

Sparrow Hawk

Flicker

Willow along streams & Road-lanes
at edge forest:

Olive-backed Thrush

Williamson Sapsucker

Calaveras Warbler

Marshall, 1939

General Comment

near Albee, near Umatilla Co, Ore.

Camped here at July 29-30
dusk in a very open forest
of yellow pine. Doug fir &
white or Red fir in denser stands
on some of the little canyons.
The main forest extending
down from ridge south and
out over a plain - becoming
more & more open & finally
petering out all together. In
the evening Longhurst & I
hunted Owls. Heard one.

Bubo, & one Otus flammeolus.
Couldn't call up Otus asio
nor saw what owls. Heard
one flying squirrel in a densely
wooded little side-canyon.
Apparently near the lower
edge of transition. Pine forest
with Artemisia in greenings.
On the 30th we moved
camp & started on 'down the
highway which went across
the plain mentioned above &
towards another range of wooded
hills. In the middle of
this plain we stopped to look

Marshall, 1939

Gen. Comment
my Albee, in Unatilla Co. Ore. July 30
with my 6X Binocs at a
most remarkable group of
hawks. A beautiful
Prairie Falcon was soaring
low over the road - Longhurst
shot at it with Woodsman 22.
2 large Black Eagles were
a little farther away -
also a sparrow hawk.
In the distance were a
pair of vultures & some
buteos. We got in the car
& approached the nest range, into
which ran a good-sized
stream. The other hawks were
still in sight behind us
when we saw a beautiful,
long-winged Osprey, flapping just
above the tops of the pines where
the stream entered the mts.
We next drove along the stream
& saw one or more crows on
every pine along it. They were
huddled close to the trunk on
horiz. stubs - in full view.
Apparently spawning fish had
attracted this congregation of raptors.

Marshall, 1939

General Comment

NE edge Alkali Lake, 4200 ft., Lake Co., Ore. July 30.

Arid upper sonoran zone. Full moon, clear, calm, warm weather. Set traps in 25 yd. intervals south from camp - all along the edge of the dry lake-bed. Set under bushes, in tall grass plots, and in little bare trails thru the humus under the clumps of bushes. Very sandy soil - wind-rippled - pure white sand. Many mammal burrows - always breaking into them. Many little holes where mammals digging. Set 65 traps - along the brush & grass plots, at the edge of the lake-bed, & 2 in island clumps of bushes out in the lake bed (60 yds from rest of vegetation).

After supper, whistled up some poorwills - heard about 6 altogether - on this very flat land. Called up one & collected it as sat on sand near some bushes, ♂ #694. Heard several Coyotes during this moonlit night.

Marshall, 1939

General Comment

N. E. edge Alkali Lake, 4200 ft. Lake Co., Ore.; July 31.

Collected traps in morning:

Of 65 traps: Birt. Oats, Walnut + Peanut
Butter

4 Microdipodops

1 Perognathus

11 Peromyscus

1 Dipodomys microps

12 " merriami (?)

One of the Peromyscus was taken in the trap set in the little island clump of bushes.

The last 10 traps had been set in sand & cracked sand - there was no apparent difference in the distribution of the mammals there.

There were tremendous numbers of tracks + tail marks around each trap, although many of them had not been touched. I popped one Dipod. out of his ~~burrow~~ burrow when my foot sank into it. Saw a chipmunk near the last trap.

On way back to camp saw sage sparrows & Say's Phoebe.

Marshall, 1939

General Comment

2 mi. E Vinton, — ft. Plumas Co. Calif., July 31

Arid Upper Sonoran — sage brush
in a valley — slopes up to yellow
pine timber on ridges to N. & S.
Arrived after dark & set 60
traps by moonlight. Sandy
soil. Started from camp
in middle of valley & set
in a rhomb \diamond — 15 across the
flat valley, 15 up to the
rocks of the hill to the N, 15
along that hill & 15 back to
camp. Set at 25 yds. reg.
intervals by moonlight — most
of the traps I placed near
bushes or under them & always
in my foot markers. Bait = oats.

Heard Horned Owls — calling
from telephone poles along
r.r. track.

Got 17 *Dipos* (merriami?) August 1.
10 *Peromyscus*, One *Eutamias* from
near the rocks. The ^{*Dipos*}~~*Peromyscus*~~
came from the sandy valley
floor, most of the *Peromyscus* from
the rocky hill. Many tracks.
Eutamias # 700 ♂.

Saw Sage Thrasher & Brewer Sparrow(?).

Marshall, J. T., Jr.

Tulare Co.: Whitaker Forest

November 17-19, 1939

Marshall, 1939

Tulare Co.

Whitaker's Forest, Nov. 17-19

General Comment

November 17/1939 Left Berkeley on Friday afternoon at 2:00 PM for Whitaker's Forest, Redwood Mt., Tulare Co., Calif., with Mr. Woodbridge Metcalf & Prof. Bob Cockerell of the forestry dept. Got to Badger at about 9:30 PM. A group of ranchers were talking in the back room of the grocery-post-office building of Badger. They were complaining about the unusual lack of rainfall this year (there has been no rain since sometime in Sept.). The talk turned to thunder showers and fires started by lightening in the brush country. They were opposed to having the fires put out - were in favor of letting them burn away the brush. Badger is in the Sierra Foothills at about 3500 or ~~4000~~ ft., and lies a very short distance below what used

Marshall, 1939

Whitaker's Forest, Nov. 17-19

to be the lower edge of the yellow pine forest of the Sierran transition. The entire country had been logged & ^{or} burned up to the 5000 ft. contour, and the forest had been replaced by a luxuriant & heavy cover of upper Sonoran brush, oak, etc. (Upper Son. birds) had also entered the area). These men did not realize that their land had been timbered and that timber was the appropriate crop to be raised there. The country is steep, and my uncle pointed out, is not adapted for grazing (is not a natural grassland) therefore, these people are injuring themselves & the country by trying to use it for grazing. They are literally "flying in the face of nature". The proof, one can notice how poorly they are making out.

Marshall, 1939

Whitaker's Forest, Nov. 17-17

their attitude is that they want to burn off the brush and allow grass to grow there. My reply cited all the work that had been done in attempting to find grasses that would cover this type of country; so far ~~none~~ ^{none} had been found. The consequences of burning are that the soil is rapidly washed away; a new stand of brush comes up (not as good as before) and so on until the land goes to desert (or chernose). If the land is left alone and the top-soil allowed to stay, the vegetation will gradually (many years) go thru the stages of succession to the yellow pine forest again. Then the land will be of use for future generations. The attitude of these men is that they want an immediate way out of their difficulties.

Marshall, 1939

Whitaker's forest, Nov 17-19

they want to make something from their stock this year. they want to burn. They don't care if the land is eventually washed away - they will be gone by then.

From Badger, Tulare Co., on the ^{original} upper edge of the Up. Son. zone we drove up the Red Hill to 5000 ft - all of which country - orig. pine & cedar - had been burned off & replaced by dense brush. Around the edges, young pines were beginning to appear. We arrived at Whitaker's at about 10:30. The night was clear, warm for winter. The weather has been like summer up to now. I walked thru the public camp ground to the "haunted house" attempting to call up F. Screech Owls. None were heard.

November 18, (Whitaker's Forest)

Collected large & small cones from tops of ^{young} Sequoias

Marshall, 1939

Whitaker's Forest, Nov 17-19

by shooting with rifle (for problem on maturation of cones by Mr. Cockrell).

In the afternoon we drove up to Saddle of Redwood Mt. & found that the Park Service had bought the large tracts of land there & was (without considering the small holders still in there) beginning to put up signs, trails (to Sugar Bowl) & planning roads. The small properties & Wortman's logged property were being "condemned" & attempting to be bought up for low prices. By a strange coincidence, we saw Prof. Fritz of Forestry dept. who had been ~~surveying~~ looking over Redwood Canyon with a Park Service man. He tried to tell us that the white fir was very poor in the area. (Propaganda for getting the land cheap?). We collected some cones & went down the mt. to Wortman's old mill - saw a

Marshall 1939

Whitaker's Forest, Nov. 17-19

Cedar laden with beautiful reddish-gold cones. W. Bluebirds were perched in the tops of young firs in the clearing.

Back at Whitaker's after dark:

I covered the entire meadow-flat area & back to camp looking for F.S.O. None answered.

Night clear, calm, warm (for Nov) later, a slight breeze. Moonlit. Heard a

spotted owl in timber at S edge Meadows Flat - which

answered my F.S.O. calls with series of 3 whistles

~~chu chu chu~~ in pattern to Teoo Teoo Teoo. Also

gave screaming & whining calls. I couldn't see it.

Saw a Mephitis (white in Y)

~~in canyon~~ at roadside in canyon just W Whitaker's Forest (between Sequoia R.S. & " "). Apparently

the F.S.Owls are not answering or, as one would expect from their insect diet, have migrated out of this region. I had thought that if their migration is merely

Marshall 1939

12-19

Whitaker's Forest, Nov., 1939

a downhill one one, they might stay at Whitaker's as long as the weather is OK as are the kinglets, juncos, robins, winter wrens, etc. But perhaps in spite of the summer weather, their food supply is not available.

Another possibility is that ~~is~~ they migrate south at a regular time, independent of when the snows come & insect food is short. I think this theory is favored by the fact that none were at Whitaker's even though the weather had been the same ever since July.

We left Whitaker's in the afternoon of the 19th & got to Berkeley at about 10:PM.

Birds seen at Whitaker's:
Spotted Owl? (heard at Meadows
The Flat)

Western Winter Wren - seen in public camp working among logs along a little creek.

Robin - several heard & seen around Pub. Camp.

Marshall, 1939

Whitaker's Forest Nov 17-19

Junco - a large flock (20?)
working in ~~around~~ bushes around
fallen redwood & ~~in~~ ^{on} clearing
at ground all at N edge Whitaker's
clearing.

Audubon Warbler - 2 in
Canyon Live Oak back of
headquarters on ~~noon~~
morning of 19th.

Large mixed flocks of Chickadees,
Red-br. Nuthatches, Golden-
crowned Kinglets, ~~working~~
and Creepers, working
thru forests - almost
never out of hearing of
one such large flock.

Chickadees feeding on gnd.
with Juncos at fallen
log, N end clearing.

Ruby-crowned Kinglet - heard
often - sometimes with
mixed flocks.

~~mt.~~ W. Bluebirds - heard overhead
on 19th, seen at Wortman's
mill 18th.

Hairy Woodpecker - often heard
Calif. Gnd. Squirrel - often heard.

Marshall, 1939

Whitaker's Forest, Nov. 17-19

All the men around the area are pretty much worked up & antagonistic to the park program of forcing them out. Tom Linsbarger expressed the conviction that he would have to go to South America to hunt & trap now. He had taken 2 bear this winter.

The CCC camp has cleared out fallen timber, & has thinned the trees for 100' on each side of every road on the property to reduce fire hazard. Wortman is logging aging firs throughout the area - he is required to trim the unused parts so that disintegration may take place rapidly. There is very little water in the stream.

I believe that many of the birds are here only because of the mildness of the weather (most or seed food still exposed & available): Robin, junco, wren, r.c. kinglet, audubon warblers.

Marshall, 1941

General Comment

May 17
7.5 mi. S Cannon Beach, Clatsop Co., Oregon
Camp in 1st stream valley north of Arch Cape - valley opens west upon the Pacific. Virgin Forest of giant Picea sitchensis, Tsuga heterophylla, & Thuja. Dense underbrush 5-10 ft. high of ferns & chaparral shrubs. Forest more open (trees ~~clear~~ of lower branches) within 100 yds of beach, where some wind-controlled Picea. Some alder thickets along creek, grass spaces near mouth - where cleared for cabins. Forest logged off 1/4 mi N this valley - here just brush & snags. Some offshore rocks off the cape - where gulls seen.

a.m. Weather rainy & windy - shot W. gulls at mouth Creek. - They appear to be nesting on cliff of cape.
Afternoon - Hiked up a trail up the canyon past last cabin. Saw Townsend chipmunk, 1 varied thrush (1246) which both came to my imitated Pigeon and calls. No other birds except a few Gld-cr. Kinglets. Very few because of deep woods, & fewer because bad weather.

Marshall, 1941

Catalog

May 17 2.5 mi. S Cannon Beach, Clatsop Co., Oregon
Late afternoon - hunted Varied
Thrushes - collected a Robin,
+ a v. thrush which decouped to
init. & whistle. Saw another
v. thrush which was alarmed about
a young bird which I presently
flushed. The alarm notes of the v.t.
& R-b thrushes apparently attracted
a Horned Owl - a very black
indiv. which lit on top dead
stub in forest. Missed it.

May 18 am. Windy cloudy. Collected at mouth
of valley among alders, spruces, & in
brushy tangles over marshy ground.
Many song sparrows and pileolated warblers.
Collected among cabins along shore (between
shore & highway). Here the trees are
depressed & there is much brush.
pm. - Called for owls - heard none.

May 19 am. Windy, cold, cloudy. Walked thru highway
tunnel thru arch cape. No cabins
south of the cape. The heavy forest comes
down to the beach on a steep slope
but a few brushy areas at mouths
of stream valleys. Few birds seen.
Hunted along highway & down an old
logging road from highway towards

Marshall, 1941

7.5 mi. S Cannon Beach, Clatsop Co., Oregon
May 19 shore - a very deep & heavily timbered
canyon about 1.5 mi. S of the cape.
Very few birds, as expected - saw
no grey jay. No logging
south of the cape - all heavy
spruce & hemlock forest - few
red cedars.

May 20 Clear, a little wind. Hunted along
a very old road which turns
inland at the north entrance
of the Arch Cape tunnel and
crosses the ridge & down
toward the shore again, meeting
the road I was on yesterday.
This is the only way thru this
very brushy country. The road
goes along the north slope of the
Arch Cape Ridge - very heavily
wooded, dark & damp. Saw varied
thrushes; called in a family
(to Golden-crowned kinglets - one of
pigmy owl calls) & one lit
on my gun barrel! Later
hunted around the relatively
open area at mouth of valley where
we are camped.

Marshall, 1941

General Comment

7.5 mi. S Cannon Beach, 50 ft., Clatsop Co., Ore.

May 21 am - Hunted along same road as yesterday hoping to see grey jays in the heavy timber & crossbills on the ridge. Very few birds. Where the old ~~to~~ road crossed the ridge, the brush was so dense that it was impossible to travel - so I went down to the highway & then the brush at the mouth of the first valley south of Arch Cape to the shore I hoped to hear wrens (Beirick). Clear, warm, some wind. Saw cormorants & gulls on a rock island which appeared to be close enough to walk out to at low tide.

Summary

This region lies within what seems to be a very narrow belt of boreal forest which extends along the coast to northern California. Back of the 1st range of hills the country is quite different - greener, less gnarled trees - more alders

Marshall, 1941

General Comment

7.5 mi. S Cannon Beach, 50 ft., Clatsop Co., Oregon
& other deciduous trees, more birds. The greatest numbers of birds at this locality as well as the greatest number of kinds were in a narrow interval between the forest & the shore - where the trees are lower & more variety of habitats as well as cabins, roads and clearing. Even the characteristically forest birds (such as Audubon Warblers) were commoner here. There were exceedingly few birds in the forest - only jays, varied thrushes, Kinglets & chickadees.

The most outstanding feature of the bird life at this locality was the very early nesting of all species & even the summer visitors! As an indication I submit the following list of birds which had grown young out of the nest: (* means juveniles shot & examined)

* *Dryobates villosus*

* *Chamaea fasciata*

Marshall, 1941

General Comment
June

7.5 mi. S Cannon Beach, ^{30 ft} Clatsop Co. Ore.

Ixoreus

Dendroica auduboni

* *Melospiza melodia*

Regulus satrapa

As is to be expected - there were more of the resident birds at advanced breeding stage than summer visitants.

It accounted for this early nesting - I note that the natives of the region were unanimous in declaring that the winter had been a very mild one with warm sunny weather prevailing. The worst storm of the season had been the one which we experienced upon our arrival on the 17th. Thus there was a very early spring & resident birds could have started nesting early - but how account for the summer birds?

All the birds in the area are in breeding condition & are settled here except for two - Ward shot a savannah sparrow in the chaparral which had small gonads & much fat - evidently migrating;

Marshall, 1941

General Comment

1.5 mi. S Cannon Beach, 50 ft., Clatsop Co., Oregon.
(I also shot one on a bush at the edge of a road near the beach - also out of its habitat & apparently migrating - but I couldn't retrieve it.) - also one ♂ Redwing blackbird which was moving south & stopped for a while on the top of a spruce near the beach. There is no habitat here for either of those species.

All other specimens taken had either large gonads or were feeding young - but the jays - whose gonads were rather small & were not even paired - Ward & I each took "pairs" which turned out to be both males.

A list of the birds of the area & their habitats follows:

Phalacrocorax - probably *auritus* sitting on rocks off the shore - about 25.

Oidemia deglandi

Larus occidentalis

20 in surf
nesting on cliffs of beach
100 along beach, ^

Larus glaucescens

2 or 3 imm.

Columba fasciata

Bubo virginianus

Chaetura vanpi

Many - throughout the forest
1 in forest - dark color
(came down to cedar tree)
6 over camp in evenings ^

Marshall, 1941

General Comment

7.5 mi. S Cannon Beach, ~~75~~ 50 ft., Clatsop Co. Ore.

<i>Selasphorus rufus</i>	common - chaparral
<i>Ceryle alcyon</i>	2 - along stream
<i>Dryobates villosus</i>	many pairs - at edge forest
" <i>pubescens</i>	2 pairs - in deciduous trees at mouth of creek
[<i>Sapsucker</i> -	saw many trees with rings (holes)
<i>Geophoenus pileatus</i>	(deep forest) several heard
<i>Colaptes cafer</i>	1 seen on south side cape
<i>Nuttallornis borealis</i>	common in timber
<i>Empidonax difficilis</i>	a pair in every "draw"
<i>Hirundo erythrogastra</i>	4 seen at mouth of creek
<i>Tachycineta thalassina</i>	several " " "
<i>Stelgidopteryx serripennis</i>	2 pairs " " "
<i>Cyanocitta stelleri</i>	common in forest
<i>Corvus corax</i>	heard & seen often along beach, & in forest
<i>Penthestes rufescens</i>	abundant in forest
<i>Psittiparus minimus</i>	several seen in chaparral
<i>Sitta canadensis</i>	common in forest
<i>Certhia familiaris</i>	rare - 1 heard at edge "
<i>Chamaea fasciata</i>	common in chaparral
[<i>Thryomanes bewickii</i>	collected by Russell]
[<i>Cinclus mexicanus</i> -	seen " "]
<i>Troglodytes</i>	
<i>Nannus troglodytes</i>	abundant
<i>Hylocichla ustulata</i>	"
<i>Geothlypis trichas</i>	" in dark forest
<i>Turdus migratorius</i>	common in open land
<i>Regulus satrapa</i>	" in forest

Marshall, 1941

General Account

7.5 mi. S Cannon Beach, 50 ft., Clatsop Co., Oregon.

<i>Vermivora celata</i>	a few in deciduous trees
<i>Dendroica auduboni</i>	a few in trees along beach
<i>Wilsonia pusilla</i>	abundant in deciduous growth
<i>Agelaius phoeniceus</i>	1 seen on the move
<i>Piranga ludoviciana</i>	1 singing in forest beach
<i>Carpodacus purpureus</i>	several pairs in trees along
<i>Spinus tristis</i>	" " " " "
" <i>pinus</i>	some in forest
<i>Loxia curvirostra</i>	flock & singing pairs in forest
<i>Passerculus sandwichensis</i>	1 flushed from bush.
<i>Junco oreganus</i>	a few 2 pairs S. of cape
<i>Zonotrichia leucophrys</i>	common along beach
<i>Melospiza melodia</i>	" in brush & deciduous growth.

The four most strikingly abundant birds were, in order of abundance:

Wilsonia pusilla

Nannus troglodytes

Hytocichla ustulata

Empidonax difficilis

No hawks & only one owl seen.

Marshall, 1941

Catalog Gil Comment

4 mi. S. Seaside, 200 ft., Clatsop Co., Ore.

May 22

We drove in the a.m. to this broad flat land covering several square mi., which is walled off from the ocean by hills to the W & SW so that the climate is milder (no sea wind). The habitats varied, and birds more numerous. Collected creepers early in the a.m. from ^{pure} grove of coast hemlocks on a cool shady ridge in the hills bordering the SW edge of the broad valley mentioned above.

Also Hairy Woodpeckers, & much elk sign. In mixed forest (mostly Douglas fir) got mob of birds around stuffed owl - Steller jays, juncos, robins, etc. & saw a fine Pileated Woodpecker.

Worked among ^{scattered} alders along Necanicum R. winding thru valley mentioned above - took Bewick Wren from streamside. Much grassland here - gen. In a flat valley to the SW (coming from the hills) was a dense & uniform stand of alders mixed with a few Doug. fir - all on boggy ground. Here were warbling & Hutton Vireos, Calif. Purple Finches, Hairy Woodpeckers. The forest in hills mentioned above differed from that along coast in lacking the dense underbrush.

Marshall, 1941

General Comment

Neenan R., 5 mi. SSE Seaside, 15 ft., Clatsop Co., Ore.

May 23
rf

Camp at edge of river which runs northward here. Dense groves of alder along the east side of r., with hills above logged off but with fairly good 2nd growth of Douglas fir. Alder thickets ^{stands} extend all thru forest along little stream runs. On the west side of r. are farms and meadows on flat land.

Hunted a.m. in cut over forest. Few birds: juncos, robins, and Hutton Vireos in thickets of young Douglas fir.

At noon, drove to Seaside and hunted in a marsh on the outskirts of town - willow thickets - where white-crowns, song sparrows, yellow warblers and red-wings were common. pm. Hunted for owls along e side r. in alders & went Douglas fir forest.

May 24
rf

a.m. Hunted in a canyon and slopes of the mountains west of camp where very dense stand of tall Douglas fir & huge coast hemlocks. Hoped to see grey jays, hermit thrushes, & tried to call up spotted owls. None ~~found~~ found. Varied thrushes, creepers, kinglets, chickadees and 1 pr. of juncos & many Winter Wrens were seen, also large flocks crossbills.

Marshall, 1941

General Comment

Necanicum R., 5 mi. SSE Seaside, 75 ft., Clatsop Co., Ore.

May 24

Hunted in riparian growth along R. where hills come close to River's edge on w. side. Several Dendroica nigrescens seen or heard. Cliff swallows common around farms. P.m. took mate of Otus taken last night.

Summary of birds at Necanicum R.:

Following seen here, not found at Cannon Beach camp (Arch Cape):

Otus asio in alders at edge of fir forest

Colaptes cafer seen in willows bordering streamside meadow

Petrochelidon abundant - nesting around barns - couldn't get permission to collect.

Corvus brachyrhynchos Common in meadows & fir forest along the river.

Dendroica vireo huttoni alders & young Douglas fir at edge of forest; also in " " forest.

Vireo gilvus alders

Dendroica nigrescens alders at edge of forest.

Dendroica townsendi

Marshall, 1941

Gentl Comment

North Santiam River, 3400 ft., Linn Co., Oregon

June 4

Camp in hollow where bend of Santiam River (ie. flows west from Big Meadow, then turns north.)

Bench mark here. Terrain sloping gently to East. We are not far from the summit of the Cascades.

& on the west side in a typical humid coastal forest with dense stand of tall, narrow-crowned trees - virgin forest & unburned.

Little down stuff & only rather scant cover of small plants on forest floor. Much bunch grass.

There are no large deciduous trees along the river - only some very low "scrub alder".

am Went thru forest toward the east along the north margin of the river.

Collected a ♀ Amer. 3-toed Woodpecker.

Saw & heard 3 hermit Thrushes between camp & Big Meadow (2 miles). Many warblers - presumably hermits - some red-breasted nuthatches, golden-crowned kinglets, & chestnut-backed chickadees.

Big Meadow is a grassy level area of about 10 acres & is surrounded by lodgepole pines. Here were a

Marshall, 1941

June 4 North Santiam River, 3400 ft., Linn Co., Oregon -
pair of hairy woodpeckers & steller
jays - many pine squirrels &
chipmunks. The river margin
is wider here, & there are
russet-backed thrushes along it.
Several pairs of Hammond flycatchers
seen. Returned to camp by
old roads along the south
side of the river - here the
forest is heavier & is mostly
mountain hemlock - because of
the north exposure. On the
flat country around & to the
north of camp is a mixed
forest of Picea, tsuga, Pinus
monticola, & Pseudotsuga.

Heard tanager singing & that I
heard a pair of creepers.

Cinclus, Nannus & Geococcyx around
camp. The birds react well
to Pigeon Owl calls.

Tried to call up Flammulated
Screech Owls last night - but
none found - too dense timber.
Were many cricket-like insects
out, however. Weather today = clear
& calm - warm.

water birch

Marshall, 1941

General Account

North Santiam River, 3400ft., Linn Co., Oregon

June 5

June 5

Walked S along highway to road junction with road leading to Big Meadow, then along this road to the "camping area." All this road & the highway in a heavy forest of hemlock - Varied thrushes singing at intervals along highway. Hermit Warblers abundant - singing in tops. Hermit thrushes singing around camp area. Walked north on road from Big Meadow about 300 yds - then turned East thru the forest & came out upon the real "big meadows" which are really vast - several square miles of meadows. Heard typical willow dwellers such as Trail flycatcher, yellow warbler, etc. There are dense willow thickets about 6-8' high along the sloughs, then borders of water birch about head high, then a 1' grass on wet ground & huckleberry on dryer ground. Song Sparrows & Lincoln sparrows abundant. One very large poplar-like tree 70' high.

Marshall, 1941

June 5 North Santiam R., 3400 ft., Linn Co., Oregon
Lodgepole pine grows on low ground on around edge of meadow; a good open forest of abies, Picea, Pseudotsuga, & tsuga on 'the little' ridge separating the two main meadows. Deep hemlock forest on the north-facing ridge on the south border of the meadow. To the east the ridge is steeper, & 'large rocks show thru' a very open stand of timber. 3-fingered jack caps a gradual incline to the southeast - Much snow on it.

In the meadow, many willow thickets cover several acres in extent. Saw beaver workings & deer trails. Tiny metamorphosing frogs abound in the "plashy brinks".

Weather: Clear, calm, warm.

June 6 Raining Very few birds seen in dense hemlock forest between camp & Big Meadows - only 1 Varied thrush, a flock of Crossbills & Siskins, and

Marshall, 1941

June 6 N. Santiam River, 3400 ft., Lin Co., Oregon
the usual hermit warblers, Golden-crowned Kinglets, & Red-backed Chickadees. Walked thru dense hemlock forest to & past Fay Lake. Very few birds in the forest - *Perisoreus*, 1 pr. Creepers, hermit warblers, & H. Thrushes. The Lake is about 100 yards across, very shallow, & fringed with grass, then willows, then slender little dwarf maples - some called vine maples which grew 100 yard back into the timber. Timber (hemlock) very dense around the lake. Very few birds - 1 pair hairy woodpeckers, 3 *Perisoreus*, several hermit warblers, 1 pair juncos, 1 pr. tanagers, a Pileated Woodpecker. Many *Triturus* in the rather warm water. Went back to Big Meadow - saw Vaux Swifts & a Goshawk - both circling low over the meadows.

June 7 Raining - not cold. The most northwesterly meadow of the "Big Meadow" group is about 200 yards across & is fringed with some

Marshall, 1941

June 7 ^{mm} North Santiam River, 3400 ft., Lin. Co., Oregon
good sized poplars (?) - Some 30' high - looks like a good place for downy woodpeckers & sapsuckers! Many crossbills in the open timber along a little ridge separating this from the main meadows. Saw few birds in the meadow, because raining & rather late in a.m.

June 8 ^{mm} Back at the meadows - working for warblers with the owl. Got a mob of melospizas (both species) in the willows + a pair of trail flycatchers & a pewee; then Song Sparrows & 2 ♀ yellow warblers (which were collected). In the open timber on the knoll between two meadows got a mob of juncos, red-br. nuthatches, chestnut-backed chickadees, hermit warblers. Saw swallows over the meadow - probably violet-green. Shot a juv. hairy woodpecker - & saw a nest of Lincoln Sparrows with young.

Marshall, 1941

N. Santiam R., 3400ft., Lane Co., Oregon.

June 8

In the evening, I drove up to the meadows at 6 P.M. All birds quiet on the meadows. Struck thru timber & got a hermit & a russet-backed thrush in low fire on the open-timbered ridge between 2 meadows. Thrushes all singing. Out on the meadow there was a great chorus of bird song for about 10 min. (after sunset). Several yellow warblers, 2 Pileolateds, many Towhees, song sparrows, Lincoln Sparrows, trail flycatchers, russet-backed thrushes. Soon all quiet. Went to another meadow & heard a few warbler song, then only Trails & R-b. thrushes. Saw one bat, no owls (called Flamulated, Screech, Horned, & Spotted) left about 9 P.M. just as getting dark, clear, calm.

June 9

clear, sunny, warm. Worked in the meadows with the owl. Got a mob of 2 Warbling Vireos, a golden-crowned Kinglet, a russet-backed thrush & 3 yellow warblers in a willow. Explored the remaining meadows to the northwest - they are less open & with denser, higher

Marshall, 1941

N. Santiam R., 3400 ft., Linn Co., Oregon

June 9

growths of willows. Heard several
pleolated warblers - But only
a few songs a piece. Most birds
altogether quiet - as it was hot
& clear & near noon.

p.m. Walked down road from camp at
dusk. Saw one that a
flying-squirrel (?) which went
across the road on a long glide,
and a Spotted Owl (see strip
occidentalis acct.)

June 10

Worked entirely in the dense
hemlock forest up the river from
camp & on the S side of the
stream. This is a very tall
forest & has most of the
creepers & varied thrushes in the
region. Actually got into
3 nearly adjacent creeper territories.
Gray jays were abundant in
this forest.

The forest opens up along
the trail (above Big Meadow) to
Duffy Lake. But there are fairly
dense, short stands on the hillside.
This is where the Spotted Owl
was taken (See Strip notes).

1

Marshall, 1941

N. Santiam R., 3400 ft., Linn Co., Oreg.

June 11 Worked the timber on the North side of the river above camp. Went along my 300 yd. trail to where I collected a ♀ 3-Toed woodpecker - hoping to hear the ♂. This country flat & exposed better to the sun, very open timber & little undergrowth. Mostly lodgepole pine, white pine, Douglas fir, etc. (spruce), less hemlock. The ideal place for hermit thrushes (quite a bit of young clumps of trees! 4 adjacent hermit thrushes collected 3! Saw flock of crossbills. This timber lower - perhaps on poorer soil. Same applies to a comparatively dwarf forest of hemlock which I hit in a little valley to the north - easy collecting for creepers, gray jays, hermit thrushes but didn't locate any varied thrushes (by giving their song, owl calls, squeaks.) Nor did I come upon the mate of my Spotted Owl (this hemlock forest was in the same draw above where I got the ♂. 1

Marshall, 1941

4 mi. N & 9 mi. W Sisters, 4000 ft., Deschutes Co., Oregon

June 12

Camp at Dry Creek Swamp - on the east edge of the swamp in a very open forest of yellow pine on rolling grassland. The swamp consists of aspens & poplars around several willow-fringed grassy meadows with much standing water. The water is ~~dammed~~ dammed back artificially so that there is no water in the creek bed below the swamp. Along the creek at the E edge of the swamp there is very dense timber - lodgepole, spruce, a few aspens, douglas fir & ~~Abies~~ Abies.

Marshall, 1941

Otus flammeolus

4 mi. N + 9 mi. W Sisters, 4000 ft., Deschutes Co., Oregon

June 12

Windy in evening - started E on road from camp at about 10 PM - when wind had died down completely. No owls answered along the $\frac{1}{2}$ mi. of road from Dry Creek Swamps (our camp) to the road junction. This was all open yellow pine with no undergrowth of brush or small trees. At the junction, heard a F.S.O. several hundred yds. to the south, along the road which leads to the Malheur Highway (4 mi.). Approached this σ which was silent for a long interval during which a bird lit in small tree over my head & then went to an open tree, perched 15' above ground & I saw its eyeshine. May have been a f .

Soon σ called to E & I found it to be calling from high in the dense parts of the yellow pines in a little draw that had much dense young fir (abies) growth. Followed it to a little clearing where it presently gave the protest note in connection with the 3-note

Marshall, 1941

Otus flammeolus

4 mi. N & 9 mi. W Sisters, 4000 ft., Deschutes Co., Ore.

June 12

call. Always, his call preceded by the grace notes was lower in pitch & rougher than the single "poop".

Tried to lead him along & presently heard another calling slower & with pitch a full step above 1st.

Shot this bird as perched on a stub of on a tall yellow pine above a thicket of young firs. Couldn't find it. Chased 1st

back to his own terr. but found him ^{He was exceedingly shy of the light.} shy of the light. Gave up

& walked 300 yds S on road. Wind now blowing. Heard one to

left rt. of road, chased from tall trees to low firs & shot in lower branches of young fir (still had branches clear to ground - sitting near trunk & in interior of the tree (#1486) called up the loud-voiced ♂ again on way back.

The conclusion which seems reasonable is that the habitat consists of open yellow pine but with an understory of young trees. I have noticed that the Crickets (which have been found in all the owl

Marshall, 1941

Otus flammeolus

4 mi. N + 9 mi. W Sisters 4000 ft., Deschutes Co., Ore.

June 12
Mun

stomachs (horned, spotted, & screech, & flam. screech) are heard in the foliage of these young trees, close to the ground. Most of this country consists of yellow pines, clear $\frac{1}{2}$ way up the trunk and with grass below - this I believe is not suitable for the owls. However, there is

a pair of horned owls & a pair of screech owls around camp which may account for the lack of F.S.O. in the vicinity.

1486 ♂ about 1 am or 12:30

stomach full & contained a green caterpillar, a moth, & parts of several of the orthopterans.

June 13
Mun

Ward Russell, Dr. Miller & I started out at dusk & went to same place as last night. Called up the load-voiced ♂ in same place - very resonant tones - he answered while still light & in about 2 min. We walked

S on road & Ward called up a ♂ about $\frac{1}{3}$ mile past where I collected mine last night. He collected it - It had eaten the one of the

Marshall, 1941

Otus flammeolus

~~4 mi. N + 9 mi. W~~ Sisters, 4000 ft., Deschutes Co., Ore.

June 13

sand cricket - like insects noted in the other owls taken on this trip. About 100 yds farther S

another ♂ was called up high in dense trees & couldn't see - didn't call very long at a time. From one tree called several times about every 3-4 minutes.

I heard him several times close to me in the dense young fir clumps - he was apparently foraging. Finally saw him on lower branch of a taller fir & was shot by Dr. Miller. Had just one moth in stomach.

Both these owls in rather open pine & fir forest with plots of clumps of young firs below. Good evidence that they forage in these firs. These 2 separated by quite a distance from the 13 noted last night - this all apparently good country - perhaps just in little groups every now & then thru timber. But wind blowing so may have missed some to the sides away from the road.

Marshall, 1941

Strix occidentalis

N. Santiam R., 3400 ft., Linn Co., Oregon

June 9

Walked N. on the highway from camp (at the bench mark at the head of the river) to the 1st road cut. Just past this cut a little draw leads up to the east - heavily wooded & a ridge on its north border is more open. Went in here & called for O. flam., Cryptoglossus, & just as I left, gave 2 spotted owl hoots & a couple of hooped " " " " I reached the road in about 1 1/2 min. & just then a ♂ spotted owl gave a burst from a tall dead tree on the ridge.

In a few more minutes he was down in the dense timber of the draw answering my calls, showing a good pink eyeshine, & perching on little stubs on the clear trunks. Collected it, ♂ 1458, stomach contained 4

whole orthopterans which I saved. Gave the typical calls but very loudly. Also the ascending series of hoots leading to regular call. Often the last hoot had a yodel in it.

Marshall, 1941

Strix occidentalis

N. Santiam R. 3400 ft., Linn Co., Oregon

June 10

at 10 am near Big Meadow

445 yards up the trail to Duffy Lake, I saw a gray jay & gave a couple of spotted owl hoots & shot him with a .22. As I was "wrapping it up" a real spotted owl blew off up the hill. I answered & down he came - I was in a relatively clear area - just a few sm. trees & he came right over - head in the blazing sunlight on a long glide & lit in a large hemlock 40 yards away.

I got him with 6's - #1474, ♂ stomach full of mammals (saved).

This is near the spot where Dr. Miller picked up a spotted owl feather a few days ago.

June 11

Dr. Miller got the ♀ of this pair in the daytime. It gave just a few snarls - ♀ #38090 AHM. Stom saved - had many of the orthopterans.

Marshall, 1941

Nephocetes le niger

San Juan Island, San Juan Co., Wash.

June 23 On highest ridge north of
Friday Harbor. At sunset,
was hunting nighthawks here &
found that there were about 20
bl. swifts foraging with them. The
swifts did not come within
100 yds or so of ground. Clear, calm.

Early July - at the U.S.W. Oceanographic
Lab. - one afternoon a flock of
black swifts came low (not
within shooting distance) over the
labs. Was a clear, sunny
afternoon.

August 2 at the edge of the
town of Friday Harbor. Rainy
afternoon, low clouds. At
6:00 PM. noted a group
of nighthawks foraging about
50 yds in air & lower. With
them about 15 barn swallows
& 20 or more black swifts very
low looked almost as large
as the nighthawks. They were
flying & soaring exceedingly slowly,
just floating about, so that
I probably ~~had~~ led too much
but finally hit one - couldn't find it.

Marshall, 1941

Nephocetes niger

San Juan Id., San Juan Co., Wash
August 13 At noon, several
nighthawks were in the air
above a coastal knoll $\frac{1}{2}$ way
between Friday Harbor & Cattle Pt.
Also many barn swallows
foraging closer to the ground.
As usual, one would expect
to see swifts with day-
foraging nighthawks. Finally 3 or
4 became invisible high above
the nighthawks, but soon returned
to the "Stratosphere".



Marshall, 1939

a 1.

Melospiza melodia

Hinchica Cr. and Marshes, Vicinity of Napa,
Napa Co., Calif. Clear, Calm, Warm. Oct 20

In the early morning, 707 & 708 were taken by Longhurst in his back yard (Hinchica Cr., 200 ft.) At about 8 or 9 AM we went down to the revolving railroad bridge ~~where~~ over the Napa River where Longhurst got his skull load. I coll. 709 & 710 On the W bank of the river, just S of the bridge, where a slough starts out towards the marshes. These were in weeds at the head of the slough - were squeaked out of the dense cover.

711-716 were collected 8 1/2 mi S, 2 1/2 mi W Napa, on the edge of an island of dry land in the extensive Napa marshes. Song sparrows were abundant all along the sloughs in tule. The six collected were in tule and the weeds on dry ground bordering a slough. A pair of White-tailed Kites was watched at this island. They perched in a row of tall Eucalyptus trees and flapped & sailed out over the marshes. Often seen to hover, then hold wings motionless over back & front down to earth. Linnet & juncos

#730 coll from Bacharis

Marshall, 1940

a 2.

Melospiza melodia

Napa - Oct 20

were also seen on the island, and several Savannah sparrows were seen on bare ground (among sparse salicornia near the slough.

In the late afternoon, we rowed to an island (Bull Id) on the East Bank of the R., $5\frac{3}{4}$ mi downstream from Napa. A pair of kites was seen on this id. - One perched in the top of a live oak (bare stub) and allowed an approach within 15 yds. The island was bordered by a band of Tules, then salicornia, then Baccharis - Song sparrows abundant in all three. Alarm & other notes given often. A few in song. Flew from tules to baccharis etc - no restriction to type of cover. 717-720 taken here. I set traps in the salicornia for Longhurst. Back at Longhurst's house, I took a Sayornis saya 721 from the awning at the south-facing sleeping porch window (2nd floor). It fluttered against the window when I turned on the light. I reached back of the screen & caught it. ~~Several Otus and~~ ~~inadequately~~

Marshall, 1940

a 2.

Melospiza melodia

Napa - Oct 20

were also seen on the island, and several Savannah sparrows were seen on bare ground (among sparse salicornia near the slough.

In the late afternoon, we rowed to an island (Bull Id) on the East Bank of the R., $5\frac{3}{4}$ mi downstream from Napa. A pair of kites was seen on this id. - One perched in the top of a live oak (bare stub) and allowed an approach within 15 yds. The island was bordered by a band of Tules, then salicornia, then Baccharis - Song sparrows abundant in all three. Alarm & other notes given often. A few in song. Flew from tules to baccharis etc - no restriction to type of cover. 717 - 720 taken here. I set traps in the salicornia for Longhurst. Back at Longhurst's house, I took a Sayornis saya 721 from the awning at the south-facing sleeping porch window (2nd floor). It fluttered against the window when I turned on the light. I reached back of the screen & caught it. ~~Several Otus asio heard in early morning.~~

Marshall, 1939

a 3.

Melospiza melodia

Napa, Oct 21 Back at the traps on the id., $5\frac{3}{4}$ mi. downstream from Napa, I found 2 song sparrows (722, 723) in two traps baited with oats and set on the moist ground under the dense growth of Salicornia. This s. formed a "jungle", very dense, about 1 foot high - the birds apparently were foraging in the little mammal trails and clearing under this cover. Back at Longhurst's house, # 724 was taken in the yard, like the others there was foraging under the shrubbery with white-crowned sparrows & towhees. A varied thrush noted in the yard. (On the way back from the Id., a Sayornis (725) was taken from a fence in a cow-pasture 5 mi. S W Napa. After lunch, we drove down the road following Huichuca Creek to its opening into the marshes, just across the S.P. R.R. tracks. Here, at the edge of the marshes, were a few Baccharis clumps, dense Wild Celery stands, Salicornia. About 10 song sparrows were seen or heard, and 3 taken from Baccharis and Celery.

Marshall, 1939

a 4.

Melospiza melodia

Napa, Oct 21 They apparently foraged on the ground under these celery stalks & would mount up onto these stalks when I would approach within 25 yds. Three were taken # 726-8. I then walked back the $2\frac{1}{2}$ or 3 miles to Longhurst's house, following the creek all the way. The creek was in a deep gorge lined with willows. Altho Towhees & crowned sparrows were common, no song sparrows were found. There was no underbrush or vine tangles suitable for them along the whole stream course. The first ones were in the weeds & vines along the Creek at Longhurst's house; these are the first ones up from the marshes, unless some occur in the ^{scrubbery of} farm yards adjacent to the creek. Thus there is at least a 2 mile gap between the salt-marsh & riparian song sparrows. In the evening, a screech Owl was collected # 729 from a Sycamore at the creek by Longhurst's house. 12⁺ were heard in the oak country

Marshall, 1939

a 5.

Melospiza melodia.

Napa, Oct 21.

on the dry slopes above the ranch. They were very wild and wouldn't answer imitated hoots, but would give one or two alarm calls (all would break out in chorus from all parts of the hill) when I gave Horned or Spotted Owl hoot.

Oct 22 Spent the day skulking the Napa sloughs with Longhurst, hunting ducks. 1st day of season. Song sparrows abundant in tule everywhere. Would fly ~~as~~ low across sloughs & alight ~~at~~ mud at base tules, then hop into this cover, foraging on the wet mud. Usually remaining very well concealed.

One duck hawk seen several times darting from high in sky & driving mixed flocks of waterfowl over the river & open places in the sloughs. Never struck. The waterfowl would fly very close to the water for protection. All three pairs of hites seen - very tame - easy mark for duck hunters. The mallards & spring got up in huge flocks at the first shooting (6:30 AM)

Marshall, 1939

a 6.

Melospiza melodia

^{Sloughs}
Napa, Oct 22 and made off
for the east, flying very high.
We got 16 Green-winged teal; the
teal stayed all day in small
groups in the smallest, most
secluded sloughs - and would be
flushed at very close range. One
snow goose seen. 1 Ruddy taken.
About 6 ruddies seen, many
avocets (?)

Marshall, 1939

a 7.

Melospiza melodia

San Pablo Creek, Contra Costa Co., Calif.

Cloudy day, no wind. December 14

748 taken as forages ~~on~~ among leaves on ground under Buckeye & Willows growing along San Pablo Creek in S.P. Canyon, 3 mi E marshes. 3 others heard here within 100 yards.

Very early in the morning (before sunrise).

Next drove down to Wildcat Cr. on the flat land 1 1/2 mi. E marshes.

Here it meanders in a gully and comes within about ~~200 yards~~ 100+ yards of San Pablo Creek. The

growth along it is restricted (by ~~cut~~ cultivation) to willows at the very edge of the gully. Also ^{Blackberry} rose tangles, thickets. Only 2

sparrows heard along 200 yards of this habitat, both Coll (749, 750)

One, foraging on ground among a few baccharis & Wild Celery stalks the other in tangles of vines in the creek gully 200 yds downstream.

751 - 757 Taken (in order towards the bay) in willows at the very last willow growth on San Pablo Cr. just before it crosses the last road and enters the marshes. A few cattail

Marshall, 1939

a 8.

Melospiza melodia

San Pablo Creek, Contra Costa Co., Calif. Dec 14.
grew in the stream bed at this point.

751 was taken in a weed field 30 yards from the willows, the rest from the willows, and a couple from the cattails. The birds were very active, chasing each other about, and arriving at the willows (from nearby weeds & vine tangles) in loudly-calling & boisterous twos & threes. They seemed to be concentrated at the willows because little available weed habitat elsewhere (all cultivated). Foraged on ground at base of willows & vine tangles. 750 - 762 taken

next In tules, weeds, and Salicornia 200 - 400 yards west of the last willows along the slough from San Pablo Creek. They were chasing each other about & ♂'s were singing from the tops of tules & from tops of a few solitary baccharis on edge of slough. Foraged on gnd. - could be squeaked up on top of tules & collected. Usually out of sight (well under cover of weed growth & tules). Next drove $4\frac{1}{2}$ mi. up San Pablo Creek into the Canyon where 3 taken 745-7 along the creek (in blackberry

Marshall, 1939

a 9.

Melospiza melodia

San Pablo Cr., Contra Costa Co., Calif. Dec 14
(tangles & willows) within 150 yds.
3 or 4 others seen, a few singing.
A good population along the ^{main} stream
here where tangles of vine & shrubbery
were abundant under the willows,
live oaks, and buckeye. None up
side-creeks, where no undergrowth.
Foraged on ground ~~among~~ under this
shrubby. Seemingly require
one thing - dense cover of plant
growth ^{on damp ground} ~~under~~ which can forage
on ^{damp} ~~damp~~ ¹ ~~1~~ ² ~~2~~ ³ ~~3~~ ⁴ ~~4~~ ⁵ ~~5~~ ⁶ ~~6~~ ⁷ ~~7~~ ⁸ ~~8~~ ⁹ ~~9~~ ¹⁰ ~~10~~ ¹¹ ~~11~~ ¹² ~~12~~ ¹³ ~~13~~ ¹⁴ ~~14~~ ¹⁵ ~~15~~ ¹⁶ ~~16~~ ¹⁷ ~~17~~ ¹⁸ ~~18~~ ¹⁹ ~~19~~ ²⁰ ~~20~~ ²¹ ~~21~~ ²² ~~22~~ ²³ ~~23~~ ²⁴ ~~24~~ ²⁵ ~~25~~ ²⁶ ~~26~~ ²⁷ ~~27~~ ²⁸ ~~28~~ ²⁹ ~~29~~ ³⁰ ~~30~~ ³¹ ~~31~~ ³² ~~32~~ ³³ ~~33~~ ³⁴ ~~34~~ ³⁵ ~~35~~ ³⁶ ~~36~~ ³⁷ ~~37~~ ³⁸ ~~38~~ ³⁹ ~~39~~ ⁴⁰ ~~40~~ ⁴¹ ~~41~~ ⁴² ~~42~~ ⁴³ ~~43~~ ⁴⁴ ~~44~~ ⁴⁵ ~~45~~ ⁴⁶ ~~46~~ ⁴⁷ ~~47~~ ⁴⁸ ~~48~~ ⁴⁹ ~~49~~ ⁵⁰ ~~50~~ ⁵¹ ~~51~~ ⁵² ~~52~~ ⁵³ ~~53~~ ⁵⁴ ~~54~~ ⁵⁵ ~~55~~ ⁵⁶ ~~56~~ ⁵⁷ ~~57~~ ⁵⁸ ~~58~~ ⁵⁹ ~~59~~ ⁶⁰ ~~60~~ ⁶¹ ~~61~~ ⁶² ~~62~~ ⁶³ ~~63~~ ⁶⁴ ~~64~~ ⁶⁵ ~~65~~ ⁶⁶ ~~66~~ ⁶⁷ ~~67~~ ⁶⁸ ~~68~~ ⁶⁹ ~~69~~ ⁷⁰ ~~70~~ ⁷¹ ~~71~~ ⁷² ~~72~~ ⁷³ ~~73~~ ⁷⁴ ~~74~~ ⁷⁵ ~~75~~ ⁷⁶ ~~76~~ ⁷⁷ ~~77~~ ⁷⁸ ~~78~~ ⁷⁹ ~~79~~ ⁸⁰ ~~80~~ ⁸¹ ~~81~~ ⁸² ~~82~~ ⁸³ ~~83~~ ⁸⁴ ~~84~~ ⁸⁵ ~~85~~ ⁸⁶ ~~86~~ ⁸⁷ ~~87~~ ⁸⁸ ~~88~~ ⁸⁹ ~~89~~ ⁹⁰ ~~90~~ ⁹¹ ~~91~~ ⁹² ~~92~~ ⁹³ ~~93~~ ⁹⁴ ~~94~~ ⁹⁵ ~~95~~ ⁹⁶ ~~96~~ ⁹⁷ ~~97~~ ⁹⁸ ~~98~~ ⁹⁹ ~~99~~ ¹⁰⁰ ~~100~~ ¹⁰¹ ~~101~~ ¹⁰² ~~102~~ ¹⁰³ ~~103~~ ¹⁰⁴ ~~104~~ ¹⁰⁵ ~~105~~ ¹⁰⁶ ~~106~~ ¹⁰⁷ ~~107~~ ¹⁰⁸ ~~108~~ ¹⁰⁹ ~~109~~ ¹¹⁰ ~~110~~ ¹¹¹ ~~111~~ ¹¹² ~~112~~ ¹¹³ ~~113~~ ¹¹⁴ ~~114~~ ¹¹⁵ ~~115~~ ¹¹⁶ ~~116~~ ¹¹⁷ ~~117~~ ¹¹⁸ ~~118~~ ¹¹⁹ ~~119~~ ¹²⁰ ~~120~~ ¹²¹ ~~121~~ ¹²² ~~122~~ ¹²³ ~~123~~ ¹²⁴ ~~124~~ ¹²⁵ ~~125~~ ¹²⁶ ~~126~~ ¹²⁷ ~~127~~ ¹²⁸ ~~128~~ ¹²⁹ ~~129~~ ¹³⁰ ~~130~~ ¹³¹ ~~131~~ ¹³² ~~132~~ ¹³³ ~~133~~ ¹³⁴ ~~134~~ ¹³⁵ ~~135~~ ¹³⁶ ~~136~~ ¹³⁷ ~~137~~ ¹³⁸ ~~138~~ ¹³⁹ ~~139~~ ¹⁴⁰ ~~140~~ ¹⁴¹ ~~141~~ ¹⁴² ~~142~~ ¹⁴³ ~~143~~ ¹⁴⁴ ~~144~~ ¹⁴⁵ ~~145~~ ¹⁴⁶ ~~146~~ ¹⁴⁷ ~~147~~ ¹⁴⁸ ~~148~~ ¹⁴⁹ ~~149~~ ¹⁵⁰ ~~150~~ ¹⁵¹ ~~151~~ ¹⁵² ~~152~~ ¹⁵³ ~~153~~ ¹⁵⁴ ~~154~~ ¹⁵⁵ ~~155~~ ¹⁵⁶ ~~156~~ ¹⁵⁷ ~~157~~ ¹⁵⁸ ~~158~~ ¹⁵⁹ ~~159~~ ¹⁶⁰ ~~160~~ ¹⁶¹ ~~161~~ ¹⁶² ~~162~~ ¹⁶³ ~~163~~ ¹⁶⁴ ~~164~~ ¹⁶⁵ ~~165~~ ¹⁶⁶ ~~166~~ ¹⁶⁷ ~~167~~ ¹⁶⁸ ~~168~~ ¹⁶⁹ ~~169~~ ¹⁷⁰ ~~170~~ ¹⁷¹ ~~171~~ ¹⁷² ~~172~~ ¹⁷³ ~~173~~ ¹⁷⁴ ~~174~~ ¹⁷⁵ ~~175~~ ¹⁷⁶ ~~176~~ ¹⁷⁷ ~~177~~ ¹⁷⁸ ~~178~~ ¹⁷⁹ ~~179~~ ¹⁸⁰ ~~180~~ ¹⁸¹ ~~181~~ ¹⁸² ~~182~~ ¹⁸³ ~~183~~ ¹⁸⁴ ~~184~~ ¹⁸⁵ ~~185~~ ¹⁸⁶ ~~186~~ ¹⁸⁷ ~~187~~ ¹⁸⁸ ~~188~~ ¹⁸⁹ ~~189~~ ¹⁹⁰ ~~190~~ ¹⁹¹ ~~191~~ ¹⁹² ~~192~~ ¹⁹³ ~~193~~ ¹⁹⁴ ~~194~~ ¹⁹⁵ ~~195~~ ¹⁹⁶ ~~196~~ ¹⁹⁷ ~~197~~ ¹⁹⁸ ~~198~~ ¹⁹⁹ ~~199~~ ²⁰⁰ ~~200~~ ²⁰¹ ~~201~~ ²⁰² ~~202~~ ²⁰³ ~~203~~ ²⁰⁴ ~~204~~ ²⁰⁵ ~~205~~ ²⁰⁶ ~~206~~ ²⁰⁷ ~~207~~ ²⁰⁸ ~~208~~ ²⁰⁹ ~~209~~ ²¹⁰ ~~210~~ ²¹¹ ~~211~~ ²¹² ~~212~~ ²¹³ ~~213~~ ²¹⁴ ~~214~~ ²¹⁵ ~~215~~ ²¹⁶ ~~216~~ ²¹⁷ ~~217~~ ²¹⁸ ~~218~~ ²¹⁹ ~~219~~ ²²⁰ ~~220~~ ²²¹ ~~221~~ ²²² ~~222~~ ²²³ ~~223~~ ²²⁴ ~~224~~ ²²⁵ ~~225~~ ²²⁶ ~~226~~ ²²⁷ ~~227~~ ²²⁸ ~~228~~ ²²⁹ ~~229~~ ²³⁰ ~~230~~ ²³¹ ~~231~~ ²³² ~~232~~ ²³³ ~~233~~ ²³⁴ ~~234~~ ²³⁵ ~~235~~ ²³⁶ ~~236~~ ²³⁷ ~~237~~ ²³⁸ ~~238~~ ²³⁹ ~~239~~ ²⁴⁰ ~~240~~ ²⁴¹ ~~241~~ ²⁴² ~~242~~ ²⁴³ ~~243~~ ²⁴⁴ ~~244~~ ²⁴⁵ ~~245~~ ²⁴⁶ ~~246~~ ²⁴⁷ ~~247~~ ²⁴⁸ ~~248~~ ²⁴⁹ ~~249~~ ²⁵⁰ ~~250~~ ²⁵¹ ~~251~~ ²⁵² ~~252~~ ²⁵³ ~~253~~ ²⁵⁴ ~~254~~ ²⁵⁵ ~~255~~ ²⁵⁶ ~~256~~ ²⁵⁷ ~~257~~ ²⁵⁸ ~~258~~ ²⁵⁹ ~~259~~ ²⁶⁰ ~~260~~ ²⁶¹ ~~261~~ ²⁶² ~~262~~ ²⁶³ ~~263~~ ²⁶⁴ ~~264~~ ²⁶⁵ ~~265~~ ²⁶⁶ ~~266~~ ²⁶⁷ ~~267~~ ²⁶⁸ ~~268~~ ²⁶⁹ ~~269~~ ²⁷⁰ ~~270~~ ²⁷¹ ~~271~~ ²⁷² ~~272~~ ²⁷³ ~~273~~ ²⁷⁴ ~~274~~ ²⁷⁵ ~~275~~ ²⁷⁶ ~~276~~ ²⁷⁷ ~~277~~ ²⁷⁸ ~~278~~ ²⁷⁹ ~~279~~ ²⁸⁰ ~~280~~ ²⁸¹ ~~281~~ ²⁸² ~~282~~ ²⁸³ ~~283~~ ²⁸⁴ ~~284~~ ²⁸⁵ ~~285~~ ²⁸⁶ ~~286~~ ²⁸⁷ ~~287~~ ²⁸⁸ ~~288~~ ²⁸⁹ ~~289~~ ²⁹⁰ ~~290~~ ²⁹¹ ~~291~~ ²⁹² ~~292~~ ²⁹³ ~~293~~ ²⁹⁴ ~~294~~ ²⁹⁵ ~~295~~ ²⁹⁶ ~~296~~ ²⁹⁷ ~~297~~ ²⁹⁸ ~~298~~ ²⁹⁹ ~~299~~ ³⁰⁰ ~~300~~ ³⁰¹ ~~301~~ ³⁰² ~~302~~ ³⁰³ ~~303~~ ³⁰⁴ ~~304~~ ³⁰⁵ ~~305~~ ³⁰⁶ ~~306~~ ³⁰⁷ ~~307~~ ³⁰⁸ ~~308~~ ³⁰⁹ ~~309~~ ³¹⁰ ~~310~~ ³¹¹ ~~311~~ ³¹² ~~312~~ ³¹³ ~~313~~ ³¹⁴ ~~314~~ ³¹⁵ ~~315~~ ³¹⁶ ~~316~~ ³¹⁷ ~~317~~ ³¹⁸ ~~318~~ ³¹⁹ ~~319~~ ³²⁰ ~~320~~ ³²¹ ~~321~~ ³²² ~~322~~ ³²³ ~~323~~ ³²⁴ ~~324~~ ³²⁵ ~~325~~ ³²⁶ ~~326~~ ³²⁷ ~~327~~ ³²⁸ ~~328~~ ³²⁹ ~~329~~ ³³⁰ ~~330~~ ³³¹ ~~331~~ ³³² ~~332~~ ³³³ ~~333~~ ³³⁴ ~~334~~ ³³⁵ ~~335~~ ³³⁶ ~~336~~ ³³⁷ ~~337~~ ³³⁸ ~~338~~ ³³⁹ ~~339~~ ³⁴⁰ ~~340~~ ³⁴¹ ~~341~~ ³⁴² ~~342~~ ³⁴³ ~~343~~ ³⁴⁴ ~~344~~ ³⁴⁵ ~~345~~ ³⁴⁶ ~~346~~ ³⁴⁷ ~~347~~ ³⁴⁸ ~~348~~ ³⁴⁹ ~~349~~ ³⁵⁰ ~~350~~ ³⁵¹ ~~351~~ ³⁵² ~~352~~ ³⁵³ ~~353~~ ³⁵⁴ ~~354~~ ³⁵⁵ ~~355~~ ³⁵⁶ ~~356~~ ³⁵⁷ ~~357~~ ³⁵⁸ ~~358~~ ³⁵⁹ ~~359~~ ³⁶⁰ ~~360~~ ³⁶¹ ~~361~~ ³⁶² ~~362~~ ³⁶³ ~~363~~ ³⁶⁴ ~~364~~ ³⁶⁵ ~~365~~ ³⁶⁶ ~~366~~ ³⁶⁷ ~~367~~ ³⁶⁸ ~~368~~ ³⁶⁹ ~~369~~ ³⁷⁰ ~~370~~ ³⁷¹ ~~371~~ ³⁷² ~~372~~ ³⁷³ ~~373~~ ³⁷⁴ ~~374~~ ³⁷⁵ ~~375~~ ³⁷⁶ ~~376~~ ³⁷⁷ ~~377~~ ³⁷⁸ ~~378~~ ³⁷⁹ ~~379~~ ³⁸⁰ ~~380~~ ³⁸¹ ~~381~~ ³⁸² ~~382~~ ³⁸³ ~~383~~ ³⁸⁴ ~~384~~ ³⁸⁵ ~~385~~ ³⁸⁶ ~~386~~ ³⁸⁷ ~~387~~ ³⁸⁸ ~~388~~ ³⁸⁹ ~~389~~ ³⁹⁰ ~~390~~ ³⁹¹ ~~391~~ ³⁹² ~~392~~ ³⁹³ ~~393~~ ³⁹⁴ ~~394~~ ³⁹⁵ ~~395~~ ³⁹⁶ ~~396~~ ³⁹⁷ ~~397~~ ³⁹⁸ ~~398~~ ³⁹⁹ ~~399~~ ⁴⁰⁰ ~~400~~ ⁴⁰¹ ~~401~~ ⁴⁰² ~~402~~ ⁴⁰³ ~~403~~ ⁴⁰⁴ ~~404~~ ⁴⁰⁵ ~~405~~ ⁴⁰⁶ ~~406~~ ⁴⁰⁷ ~~407~~ ⁴⁰⁸ ~~408~~ ⁴⁰⁹ ~~409~~ ⁴¹⁰ ~~410~~ ⁴¹¹ ~~411~~ ⁴¹² ~~412~~ ⁴¹³ ~~413~~ ⁴¹⁴ ~~414~~ ⁴¹⁵ ~~415~~ ⁴¹⁶ ~~416~~ ⁴¹⁷ ~~417~~ ⁴¹⁸ ~~418~~ ⁴¹⁹ ~~419~~ ⁴²⁰ ~~420~~ ⁴²¹ ~~421~~ ⁴²² ~~422~~ ⁴²³ ~~423~~ ⁴²⁴ ~~424~~ ⁴²⁵ ~~425~~ ⁴²⁶ ~~426~~ ⁴²⁷ ~~427~~ ⁴²⁸ ~~428~~ ⁴²⁹ ~~429~~ ⁴³⁰ ~~430~~ ⁴³¹ ~~431~~ ⁴³² ~~432~~ ⁴³³ ~~433~~ ⁴³⁴ ~~434~~ ⁴³⁵ ~~435~~ ⁴³⁶ ~~436~~ ⁴³⁷ ~~437~~ ⁴³⁸ ~~438~~ ⁴³⁹ ~~439~~ ⁴⁴⁰ ~~440~~ ⁴⁴¹ ~~441~~ ⁴⁴² ~~442~~ ⁴⁴³ ~~443~~ ⁴⁴⁴ ~~444~~ ⁴⁴⁵ ~~445~~ ⁴⁴⁶ ~~446~~ ⁴⁴⁷ ~~447~~ ⁴⁴⁸ ~~448~~ ⁴⁴⁹ ~~449~~ ⁴⁵⁰ ~~450~~ ⁴⁵¹ ~~451~~ ⁴⁵² ~~452~~ ⁴⁵³ ~~453~~ ⁴⁵⁴ ~~454~~ ⁴⁵⁵ ~~455~~ ⁴⁵⁶ ~~456~~ ⁴⁵⁷ ~~457~~ ⁴⁵⁸ ~~458~~ ⁴⁵⁹ ~~459~~ ⁴⁶⁰ ~~460~~ ⁴⁶¹ ~~461~~ ⁴⁶² ~~462~~ ⁴⁶³ ~~463~~ ⁴⁶⁴ ~~464~~ ⁴⁶⁵ ~~465~~ ⁴⁶⁶ ~~466~~ ⁴⁶⁷ ~~467~~ ⁴⁶⁸ ~~468~~ ⁴⁶⁹ ~~469~~ ⁴⁷⁰ ~~470~~ ⁴⁷¹ ~~471~~ ⁴⁷² ~~472~~ ⁴⁷³ ~~473~~ ⁴⁷⁴ ~~474~~ ⁴⁷⁵ ~~475~~ ⁴⁷⁶ ~~476~~ ⁴⁷⁷ ~~477~~ ⁴⁷⁸ ~~478~~ ⁴⁷⁹ ~~479~~ ⁴⁸⁰ ~~480~~ ⁴⁸¹ ~~481~~ ⁴⁸² ~~482~~ ⁴⁸³ ~~483~~ ⁴⁸⁴ ~~484~~ ⁴⁸⁵ ~~485~~ ⁴⁸⁶ ~~486~~ ⁴⁸⁷ ~~487~~ ⁴⁸⁸ ~~488~~ ⁴⁸⁹ ~~489~~ ⁴⁹⁰ ~~490~~ ⁴⁹¹ ~~491~~ ⁴⁹² ~~492~~ ⁴⁹³ ~~493~~ ⁴⁹⁴ ~~494~~ ⁴⁹⁵ ~~495~~ ⁴⁹⁶ ~~496~~ ⁴⁹⁷ ~~497~~ ⁴⁹⁸ ~~498~~ ⁴⁹⁹ ~~499~~ ⁵⁰⁰ ~~500~~ ⁵⁰¹ ~~501~~ ⁵⁰² ~~502~~ ⁵⁰³ ~~503~~ ⁵⁰⁴ ~~504~~ ⁵⁰⁵ ~~505~~ ⁵⁰⁶ ~~506~~ ⁵⁰⁷ ~~507~~ ⁵⁰⁸ ~~508~~ ⁵⁰⁹ ~~509~~ ⁵¹⁰ ~~510~~ ⁵¹¹ ~~511~~ ⁵¹² ~~512~~ ⁵¹³ ~~513~~ ⁵¹⁴ ~~514~~ ⁵¹⁵ ~~515~~ ⁵¹⁶ ~~516~~ ⁵¹⁷ ~~517~~ ⁵¹⁸ ~~518~~ ⁵¹⁹ ~~519~~ ⁵²⁰ ~~520~~ ⁵²¹ ~~521~~ ⁵²² ~~522~~ ⁵²³ ~~523~~ ⁵²⁴ ~~524~~ ⁵²⁵ ~~525~~ ⁵²⁶ ~~526~~ ⁵²⁷ ~~527~~ ⁵²⁸ ~~528~~ ⁵²⁹ ~~529~~ ⁵³⁰ ~~530~~ ⁵³¹ ~~531~~ ⁵³² ~~532~~ ⁵³³ ~~533~~ ⁵³⁴ ~~534~~ ⁵³⁵ ~~535~~ ⁵³⁶ ~~536~~ ⁵³⁷ ~~537~~ ⁵³⁸ ~~538~~ ⁵³⁹ ~~539~~ ⁵⁴⁰ ~~540~~ ⁵⁴¹ ~~541~~ ⁵⁴² ~~542~~ ⁵⁴³ ~~543~~ ⁵⁴⁴ ~~544~~ ⁵⁴⁵ ~~545~~ ⁵⁴⁶ ~~546~~ ⁵⁴⁷ ~~547~~ ⁵⁴⁸ ~~548~~ ⁵⁴⁹ ~~549~~ ⁵⁵⁰ ~~550~~ ⁵⁵¹ ~~551~~ ⁵⁵² ~~552~~ ⁵⁵³ ~~553~~ ⁵⁵⁴ ~~554~~ ⁵⁵⁵ ~~555~~ ⁵⁵⁶ ~~556~~ ⁵⁵⁷ ~~557~~ ⁵⁵⁸ ~~558~~ ⁵⁵⁹ ~~559~~ ⁵⁶⁰ ~~560~~ ⁵⁶¹ ~~561~~ ⁵⁶² ~~562~~ ⁵⁶³ ~~563~~ ⁵⁶⁴ ~~564~~ ⁵⁶⁵ ~~565~~ ⁵⁶⁶ ~~566~~ ⁵⁶⁷ ~~567~~ ⁵⁶⁸ ~~568~~ ⁵⁶⁹ ~~569~~ ⁵⁷⁰ ~~570~~ ⁵⁷¹ ~~571~~ ⁵⁷² ~~572~~ ⁵⁷³ ~~573~~ ⁵⁷⁴ ~~574~~ ⁵⁷⁵ ~~575~~ ⁵⁷⁶ ~~576~~ ⁵⁷⁷ ~~577~~ ⁵⁷⁸ ~~578~~ ⁵⁷⁹ ~~579~~ ⁵⁸⁰ ~~580~~ ⁵⁸¹ ~~581~~ ⁵⁸² ~~582~~ ⁵⁸³ ~~583~~ ⁵⁸⁴ ~~584~~ ⁵⁸⁵ ~~585~~ ⁵⁸⁶ ~~586~~ ⁵⁸⁷ ~~587~~ ⁵⁸⁸ ~~588~~ ⁵⁸⁹ ~~589~~ ⁵⁹⁰ ~~590~~ ⁵⁹¹ ~~591~~ ⁵⁹² ~~592~~ ⁵⁹³ ~~593~~ ⁵⁹⁴ ~~594~~ ⁵⁹⁵ ~~595~~ ⁵⁹⁶ ~~596~~ ⁵⁹⁷ ~~597~~ ⁵⁹⁸ ~~598~~ ⁵⁹⁹ ~~599~~ ⁶⁰⁰ ~~600~~ ⁶⁰¹ ~~601~~ ⁶⁰² ~~602~~ ⁶⁰³ ~~603~~ ⁶⁰⁴ ~~604~~ ⁶⁰⁵ ~~605~~ ⁶⁰⁶ ~~606~~ ⁶⁰⁷ ~~607~~ ⁶⁰⁸ ~~608~~ ⁶⁰⁹ ~~609~~ ⁶¹⁰ ~~610~~ ⁶¹¹ ~~611~~ ⁶¹² ~~612~~ ⁶¹³ ~~613~~ ⁶¹⁴ ~~614~~ ⁶¹⁵ ~~615~~ ⁶¹⁶ ~~616~~ ⁶¹⁷ ~~617~~ ⁶¹⁸ ~~618~~ ⁶¹⁹ ~~619~~ ⁶²⁰ ~~620~~ ⁶²¹ ~~621~~ ⁶²² ~~622~~ ⁶²³ ~~623~~ ⁶²⁴ ~~624~~ ⁶²⁵ ~~625~~ ⁶²⁶ ~~626~~ ⁶²⁷ ~~627~~ ⁶²⁸ ~~628~~ ⁶²⁹ ~~629~~ ⁶³⁰ ~~630~~ ⁶³¹ ~~631~~ ⁶³² ~~632~~ ⁶³³ ~~633~~ ⁶³⁴ ~~634~~ ⁶³⁵ ~~635~~ ⁶³⁶ ~~636~~ ⁶³⁷ ~~637~~ ⁶³⁸ ~~638~~ ⁶³⁹ ~~639~~ ⁶⁴⁰ ~~640~~ ⁶⁴¹ ~~641~~ ⁶⁴² ~~642~~ ⁶⁴³ ~~643~~ ⁶⁴⁴ ~~644~~ ⁶⁴⁵ ~~645~~ ⁶⁴⁶ ~~646~~ ⁶⁴⁷ ~~647~~ ⁶⁴⁸ ~~648~~ ⁶⁴⁹ ~~649~~ ⁶⁵⁰ ~~650~~ ⁶⁵¹ ~~651~~ ⁶⁵² ~~652~~ ⁶⁵³ ~~653~~ ⁶⁵⁴ ~~654~~ ⁶⁵⁵ ~~655~~ ⁶⁵⁶ ~~656~~ ⁶⁵⁷ ~~657~~ ⁶⁵⁸ ~~658~~ ⁶⁵⁹ ~~659~~ ⁶⁶⁰ ~~660~~ ⁶⁶¹ ~~661~~ ⁶⁶² ~~662~~ ⁶⁶³ ~~663~~ ⁶⁶⁴ ~~664~~ ⁶⁶⁵ ~~665~~ ⁶⁶⁶ ~~666~~ ⁶⁶⁷ ~~667~~ ⁶⁶⁸ ~~668~~ ⁶⁶⁹ ~~669~~ ⁶⁷⁰ ~~670~~ ⁶⁷¹ ~~671~~ ⁶⁷² ~~672~~ ⁶⁷³ ~~673~~ ⁶⁷⁴ ~~674~~ ⁶⁷⁵ ~~675~~ ⁶⁷⁶ ~~676~~ ⁶⁷⁷ ~~677~~ ⁶⁷⁸ ~~678~~ ⁶⁷⁹ ~~679~~ ⁶⁸⁰ ~~680~~ ⁶⁸¹ ~~681~~ ⁶⁸² ~~682</~~

Marshall, 1940

a 10.

melospiza melodia

1/2 mi. E Diablo Pt. Contra Costa Co., Calif.

This is the flat ^{Cloudy} ~~Calm~~ February 24 salt-marsh at the county line, innervated by a network of small, slow-moving sloughs from Cerrito Creek - all just north & north-west of El Cerrito (the knoll). Each slough is bordered by a growth of a composite shrub 3-5 feet high and extending in a dense belt 3-10 yards on each side of the slough. The areas in between are covered with a dense salicornia cover, only 6"-1' high. The song sparrows were abundant in the composites - very wary, foraging on the ^{wet} ground at the bases of the plants - covering the ground in a course 11 to the slough. The birds were mostly all definitely paired; M's were singing from definite song perches (tops of the composites or within these shrubs). One pair was foraging on the ground under 2 isolated shrubs on the side of the R.R. embankment. They stayed very close together - I scared them & they flew back to the growth along the sloughs. Likewise, another pr. was

Marshall, 1940

a 11.

Melospiza melodia

Beni & Isabel Pt., Contra Costa Co. Calif.
found in Salicornia there Feb. 24.
in the shrubbery on the bay side of
the embankment. Chatti collected
a pair & we each took a
single bird (770-773). The
birds were very abundant, I should
say 1 pair to every 25 or 30 yards of
growth along the slough. I collected
a pair at the west edge of the
RR. embankment just W of El Cerrito
(knoll). The ♂ 774 was singing
from a wire 10' above ground; the
♀ was taken in a baccharis
just under this perch. The area
here was wet salicornia marsh
& weeds along the RR. bank.
About 3 pairs only were seen
in the Salicornia W of the RR. bank.
They would fly across the RR. &
back to the shrubby-lined sloughs.

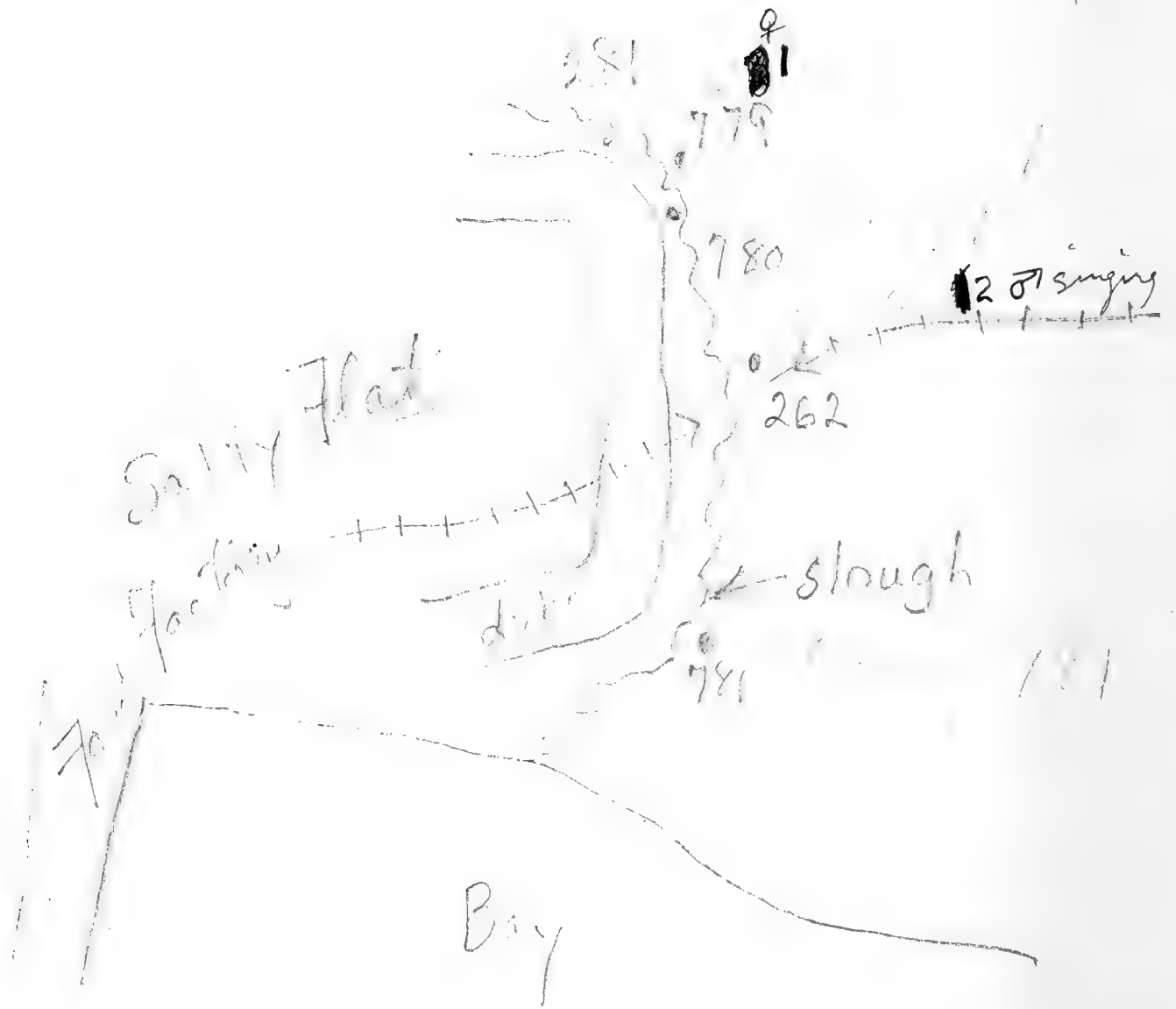
Marshall, 1940

a 12.

Melospiza melodia

Richmond (hills SW of), Contra Costa Co. Calif.

These hills face the March 1, 1940
Richmond Yacht Harbor - there is
no marsh land here, as all has
been filled in by dredging for
the yacht-harbor. Song Sparrows
were abundant in Baccharis &
wet weed thickets & Celery
patches at the very base of these
hills (where miniature meadows
and grd. very wet. None above
the 2nd road. Seemed to be
in mating activity, pairs chasing
each other, ♂'s singing from definite
perches. 3 taken 776-8 in baccharis
~~near~~ & adjacent weeds on wet (fresh-
water) ground just above road. ♂'s
stopped singing ^{for most pt.} after an hr. Clear,
bright, calm day. Stone took 4 more,
3 at sea level at the base of hill
(in baccharis, 1 in Celery patch).
A fresh-water situation - swampy
weedy growth at base of hill -
singing & pursuing each other thru
baccharis & poison oak tangles - all
confined to near base of hill.
Very numerous, but in very narrow
belt.



Marshall, 1940

a 13.

Melospiza melodia

Slough on S side Richmond Contra Costa Co., Calif.

This is the only suitable march 1. s.s. habitat between The Richmond hills and the tule marsh just S of Stege. None found anywhere else between these pts. except one singing in shrubbery of door yard of house at Stege, only 200 yds. from tule marsh. This slough ran toward the bay from Cerrito - & is about $\frac{3}{4}$ mi East of the Ford plant. It is lined with dense cover of salicornia, & here & there bushes (a composite). Towards the mouth of the slough, there is a dense ~~with~~ cover of these bushes, 3-4' high & about 5-10 yards wide. Several pairs of s.s. were found along this slough - foraging in salicornia, singing from tops bushes, flying low over salicornia (diving in or alighting in shrubbery). I took 3 (779-81) & Stom took 2. The part of the slough occupied by song sparrows is only about 300 yards long, the total population of song sparrows must be 16 or 20. A very sm. colony & isolated by



Marshall, 1940

a. 14.

Melospiza melodia

Richmond~~st~~ Stege, Contra Costa Co., Calif. March 1.

more than a mile in every direction. The birds appeared to be paired ♂'s singing from song perches.

At Stege one was heard in a 'door yard' (shrubbery - baccharis) near the bay, and a total of about 6 birds ~~was~~ seen in the small Tule marsh just SW of the ^{R.R.} station. ~~2~~ The marsh was no more than 200 x 100 yds, probably less - was a dense growth of tules on very mushy mud. Flooded at high tide (where do song sparrows go then?). 100 yds from shore was a little arm of dry ground with some salicornia. Here a pair was flushed from " - they ~~flew~~ ^{flew back} out into the tules. When we first arrived at the marsh, several ♂'s were singing after I collected one (782) singing on a concrete structure in the center of the marsh, and chased after others, there apparently was not a single bird left there. I walked out a board walk to the arm of land mentioned above.

Marshall, 1940

a. 15.

melospiza melodia

Stege, Contra Costa Co., Calif. March 1, 1940
and was surprised to hear a
half-dozen song sparrows singing
from a rock breakwater ^{or more} 300 yds
out in the bay! Their clear
songs rolled across the water
from this absolutely barren
breakwater! Apparently ~~th~~ my
tule-marsh birds had all
retreated out to the breakwater.
Back at the edge of the marsh, 2
were seen again in the Tules, & one
collared it hopped ~~at~~ around on
a mat of ^{dead} tule. (F 783).

The salicornia marsh was seen
to start again farther south (past
a dump - and extend ^{narrowly} along the
west side of the R.R. embankment
almost all the way to Loabel
point.

Marsh between Stege & Loabel Pt., Contra Costa Co.,
Calif. March 8. Cold, overcast day.
784-6 taken here. Foraged in Salicornia
(where invisible under 6" cover of ") or
at bases of baccharis & Composite shrubs.

Marshall, 1940

a 16.

Melospiza melodia

Marsh between Stege & Isabel Pt., Contra Costa Co., Calif.

Stone took several - March 8.

more. All taken ~~on~~ in narrow strip of Salicornia marsh (with shrub patches) on west of R.R. embankment. Marsh only 25-75 yards wide here. S.S. paired;

♂'s singing usually 2 birds foraging together. No chasing seen.

No long flights taken. Several heard from Salicornia on E side of R.R. at one pt.. However, I believe that this is an isolated colony of S.S. - the only habitat between Stege and Isabel Pt. - No streams entering here - not enough

shrubby around few houses & auto camps on higher ground. One pair about every 75 yards or less.

The farthest south taken were (784 & 5)

~~One taken at~~ Both had ~~see~~ been feeding in the mud of a small patch of tules; flew back to sm. patch of shrubs in Salicornia, coll.

11/11/11

Marshall, 1940

a 17.

Melospiza melodia

San Pablo Marsh, Contra Costa Co., Calif. March 8

Tules extend in from bay in a broad belt about $\frac{1}{4}$ mi in width; then about $100 \pm$ yds of Salicornia (dense, on wet gnd; 8-12" high. S.s. singing - paired, flying from tules to Salicornia & vice versa. Pairs flushed in " would fly out to the tules. Apparently, then a continuous population. Hard to see if pairs

limited to a given area here (as they are along sloughs) - They seem to cover a lot of ground, & ~~concern~~ and the area is so homogeneous - ~~the~~ can the per birds delimit sections of it for nesting areas, and better than I can sense them? 787-8 taken in Salicornia at edge of marsh, 400 yards N of willows at mouth San Pablo Cr. That is, they were at the boundary between marsh and cultivated field. They had been in a few isolated shrubs at the edge of the Salicornia. 789 was taken from tall shrub at edge of marsh. 790-94 taken in tules & Salicornia. A gt. conc. of birds in taller weeds & Salicornia around

Marshall, 1940

a 18.

Melospiza melodia

San Pablo Marsh, Contra Costa Co., Calif., March 8
a pond. Ned Stone said he saw
a black-breasted bird here. The
sparrows did not seem to be limiting
themselves to any definite areas.

Would need more observation to tell.
~~Birds~~ apparently chasing ^{each} other all over
marsh.

795-6 (a pair) and 797 were then
taken in willows & growth beneath
them $\frac{1}{3}$ mi. upstream from mouth
San Pablo Cr. They were in unworn
plumage & no mud on head & bill,
as in the salt-marsh birds.

♂'s singing all along these willows.
Foraging in brush along stream, weeds
at edge of willow-growth.

798 taken from willow at mouth
Wildcat Creek to south. S.s. very
abundant in these willows - about
12 in 100 yds. Confined to the
growth along the stream. Very hard to
approach. Many singing ♂'s.

Marshall, 1940

Melospiza melodiaStrawberry Canyon, Berkeley, Alameda Co., Calif. March 16

A male, #799 taken by sling shot after squeaked up out of vine tangles on south hill slope just above Strawberry pool. Had been singing.

Campus #800, male taken as hopped among bushes (on the ground) at edge of lawn on north side Haviland Hall. Had been singing. Mate also seen.

Campus, March 25 Female, 802 trapped by Al Wolfson at edge of Eucalyptus grove near L.S.R. A male, # 803 trapped on the 27th.

Coyote Creek, Santa Clara Co., Calif. April 5

Clear, Windy. Drove down from Berkeley with Stone.

Stopped at a fresh-water marsh just south of San Mt.

Eden and collected two song sparrows. (put up by stone)

Also there were many in the cattails along the highway.

Got another from a tree on the side of the same highway near Alvarado; also put up by Stone.* Drove to Milpitas, thence west on the highway towards Alviso. Stopped where Coyote Creek crosses the highway and worked along the willows to mouth. Many ss taken, many singing in the narrow growth and brush piles along the creek, also in adjacent orchards. Would fly out into the orchards to sing and when stalked would retreat to the streamside growth.

Began getting yellow-bellied birds long (several hundred yards) before reaching salicornia flats. No good salt marsh at end of willows, because has all been drained. Apparently no ss between the end of the willows and the edge of the bay. The yellow-bellied birds must be hybrid descendants of the pusillula which had to retreat to the stream and orchards when the marsh was drained. See accompanying map for location of specimens. Several good santaecrucis taken but most appear to be hybrids.

Drove to Stanford and looked at the collection. They have Grinnell's specimens taken by him on his bicycle song sparrow expedition. Dr. Martin has in his personal collection good pusillula from a gun club on the marsh west of east of the town. Good habitat for pusillula seen at Alviso.

Solano Co., Calif. SS Expedition with Emerson Stoner Benicia. April 7

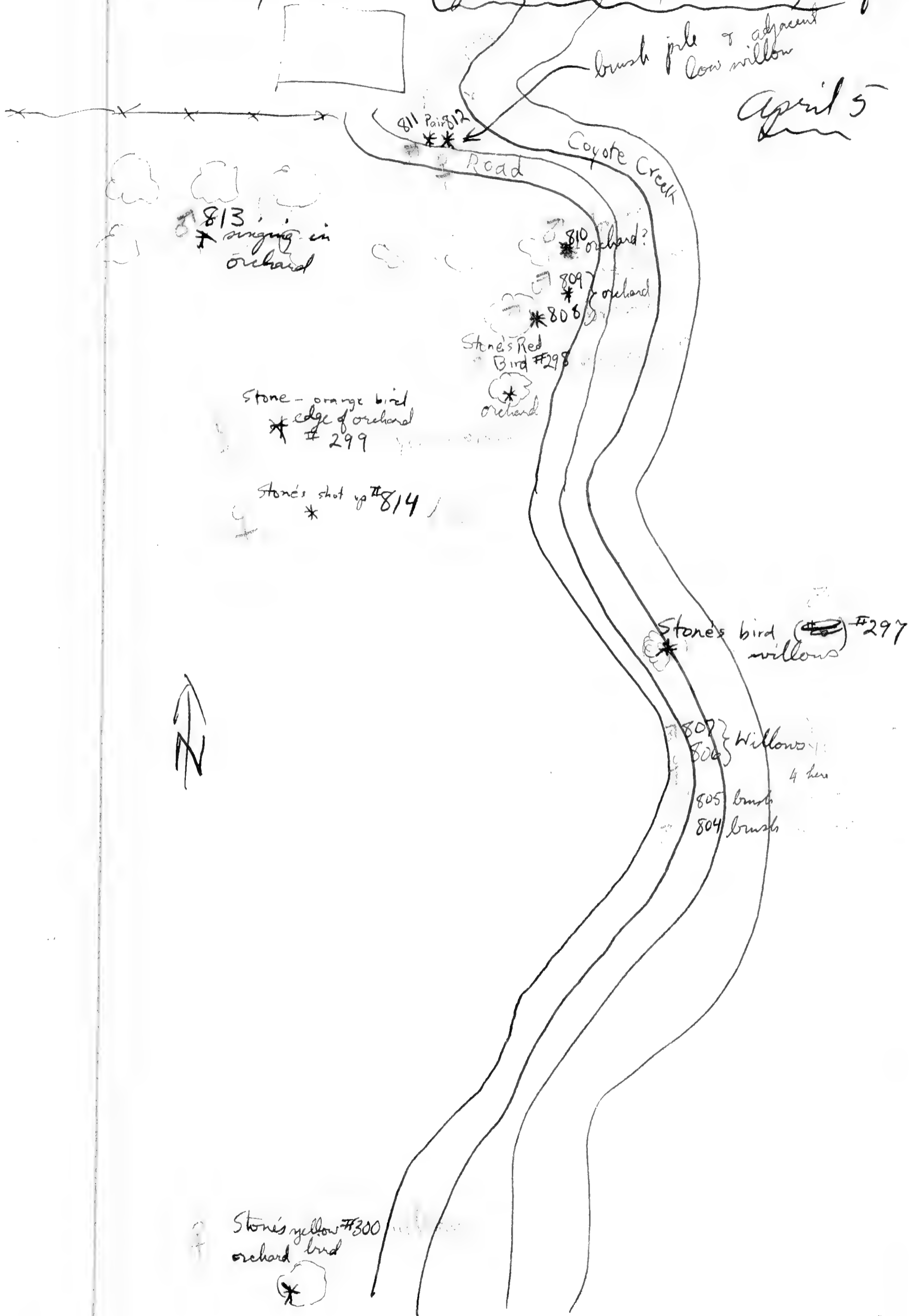
Met Stoner at Vallejo, Drove to Island no. 1. in Napa Co. A slight drizzle of rain. Song sparrows more abundant than I have ever seen.

* See p back of this page.

* Stopped at fresh-water pond near Alvarado - bamboos planted - saw owner - who made this a duck ground & rented it to hunters. Saw no S.S. here. He told me to go $\frac{1}{2}$ mi to a big Duck Club (owned by S.F. banker) & see caretaker (Nelson?). Went down - House with garden & chicken coops - many song sparrows around feeding in " " . About 50 yds. away were poplars & willows - farther, was the salt marsh. go back here. (have lost name of club & owner.)

Marshall, 1940

Coyote Cr. Santa Clara Co. Calif. ^{a 20} 20.



Let 11 ... 5

to ... ♂ + ♀

Agave ... ♀ ... (...) ... False

Solomon ... ♂ ... (...) ... (...)

Marsh ... Valley ... ♂ + ♀(?)

Sub ... ♀ ... Great ...

Old I. just E. Sonoma Co. Bridge

♂ ... at ... ♀

Marshall, 1940

Melospiza melodiaSolano Co, Calif.April 7

abundant than I have ever seen them before. Were in a very luxuriant growth of baccharis, grindelia, etc. Would squeak four or five out of a bush at once. A pair almost every ten yards. Several taken also from a very tall stand of Salicornia on the highway nearer Vallejo. The rest of the day we took series from salt marshes (salicornia, tules, grindelia) at Vallejo marsh (on the southern end of town), Southampton Bay marsh, marsh at the Benicia arsenal on Carcinez Straits, and the marsh at the mouth of Sulphur Springs Valley. Next we drove about three miles up Sulphur Springs Valley and took some at the fresh water marsh at the Benicia reservoir, called Lake Herman. These birds were in reeds and willows. Had a swell supper at the Stoner's, and returned via Greyhound after putting on some of Emerson's dry clothes. We didn't find any real maxillaris at all.

Contra Costa and Solano counties, Calif. May 13

This time, took a university car. #191 and with Stone collected riparian ss from Rodeo Creek watershed to the Green Valley watershed at Cordelia. Several were taken in willows at various points along Rodeo Creek were very abundant at one point about 2 miles east of Rodeo, where two forks of the creek met in a broad valley with a large tract of willows. Juvenals out and around. Next stop was Canada del Cierbo, a canyon opening into the town of Selby, where the chemical plant is located. About a mile up the valley from the bay there is a reservoir with a large tract of willows and cattails, in which song sparrows were abundant. Also russet-backed thrushes, Allen hummers, grosbeaks, etc. A fine collecting place. Lake Herman, where we next stopped was an almost identical situation, but here gouldi, rather than santaecrucis were in abundance. A bird was taken from a patch of willow about three miles up the Green Valley watershed north of Cordelia. We stopped right in Cordelia when we heard some ss singing in the fresh water marsh there at the mouth of Green Valley Creek. We collected four. Then we drove south three miles onto the salt marsh and took 6 from the dense population there in the tules. The weather was fair; clear but quite windy.

Marshall, 1940

Melospiza melodia

I had thought that the dry grass hills east of Vallejo might serve as a barrier between Gouldi to the north and Santaecrucissouth of the Carcines Straits. Therefore, I went with Longhurst on a trip through Napa andnty. Napa County, Calif. May 18-20

On the 18, after having spent the night of the 17th looking for Goofus Owls on Mt. St. Helena, we stopped at a stream 2 mi. North of Calistoga, where I collected one song sparrow, away from the willows, in some weeds. Only this bird and its mate were seen, and they were located only when I apraoched their nest. None were singing nor in evidence anywhere in the willows.

(Several Anthony Green Herons see. The next locality was a frest-water marsh $\frac{2}{3}$ miles se of Calistoga, where song sparrows and redwings were abundant. The sparrows were singing from the thickets bordering the marsh, and seemed to prefer this rich growth of

"soft chaparral" to the cattails themselves. Two birds were taken from the bank of the Napa River at the home of a freind of Longhurst about 3 miles north of town.

(Napa). On the 19th, one male was taken at Longhurst's ranch on Huichica Creek. It had been heard singing once or twice during the day, and was finally located in some willows bordering the creek. None were found anywhere else along the creek nor on neighboring creeks. At midnight, I hitch-hiked from the ranch to Jareson Canyon, sleppeddinslept in a haystack, and started east along the railroad tracks at dawn.

I was surprised to find song sparrows very numerous in this canyon, surrounded by grassy hills. A very good habitat occoured aong the railroad trak, and consiste of low willows, and vine tangles. Probably each canyon between here and the straits has much this same growth, so that these dry hills probably are not as much of a barrier for upland song sparrows as might be supposed. When I got to the Head of the western watershed of theis pass, I started down into the canyon on the Solano Co. side. Here were oaks, buckeye, etc., and few willows, which must account for the fact that I found no sparrows at all. Therewas, however, a very heavy wind. One was taken in Solano Co. at the top of the pass, still in the vine tangles.

Last week in May. Berkeley Aquatic Park, Alameda Co.

Marshall, 1940

a. 23.

Melospiza melodia

Berkeley Aquatic Park, Alameda Co., Calif.

Last week in May

Two pairs seen at close range with binocs. were nesting in willows at edge of the pond by KRE radio station. Foraging ~~is~~ on mud around edge of tule patch. Apparently nesting because both members of first pair gave continuous alarm notes. Watson had thought he had seen a very dark bird here - Dave Nichols also * similar to the Northh bird - a mutant(?) - from Melrose marsh. The birds we saw at this time were normal santaecrucis apparently. I could see no trace of yellow on the undersides, even with the 16 power binocs. The dark bird had been seen early in the year at this same patch of willows.

Saw a good salt water marsh at the bridge entrance. Perhaps good pusillula here. Situation has probably changed a lot in recent years, owing to draining of marshes - at expense of pusillula and to advantage of santaecrucis.

Marin Co. salt marshes, Calif. July 1

Objective: to "obtain" as Sibley says - song sparrows from marshes as close to the golden gate as possible (on the north side of course). This was to see if there was any intergradation between samuelis and pusillula between South San Francisco and Marin Co. marshes.

Took John Chattin's ford and Boots; left Boot's house at about twelve noon. Went via Richmond ferry to San Rafael and down the highway to the most southerly marsh on the bay side. This turned out to be at the mouth of Coyote Creek. The upper end of the marsh was of sali cornia, bordered by baccharis and vine tangles and willows. In other words, there was a fine gouldi habitat all around the edge of this part of the marsh, and the marsh itself was none too good even for samuelis. I was not surprised then to find the sparrows only around the edge, where they were singing and carrying food to the nest. #911 was carrying in food from the marsh, but was nevertheless nesting in a poison-oak thicket at the edge.

Marshall, 1940

Melospiza melodiaMarin Co., Calif. , salt marshes. July 1

In Marin Co., then, owing to the prevalence of soft chaparral, which is such good habitat for upland song sparrows, there is more continuity in the distribution of salt marsh and fresh water birds than any where else around the bay. As a result, one might well expect the salt marsh and fresh-water forms to be more like each other here than any other place around the bay.

To go on with the marsh at the mouth of Coyote Creek, the main part of the marsh towards the bay consisted of a luxuriant growth of tules and ss were common in them; but the wind was blowing so hard that I was unable to stalk or scare up any which could be shot with the 22 revolver. Perhaps these birds are more typical of samuelis.

~~Three-birds-were-later~~ We next had lunch in the hills back of Ross, and then went down to the marsh at the mouth of Corte Madera Creek. Here ss were abundant in salicornia and tules by some cabins at the edge of the slough. Boots picked out the adults with the binoculars, as families of 5-6 young would swarm around me when I squeaked. I took two adults and a juvinal with the 22 revolver.

We went to Muir Woods at dusk and heard hermit and russet-backed thrushes, and saw three deer. I was unable to call up any spotted or pygmy owls. Lowery Dobson told me later that he had seen a pair of Spotted Owls in the daytime perched above the nature trail a few yards from where it branches off from the main park trail.

Suisun Bay, Solano Co., Calif. July 8

With Ned Stone went to Cordelia on afternoon of 7th. Camped 3 mi. up Green Valley, in blue and live oak country. Windy; didn't find any scronch owls. Next am, drove toward Cordelia, picked up ss at creek crossing. Several were in small patch of cattails and adjacent willows. This was at a ranch about 2 mi. from the bay. Next collected a series from the

Marshall, 1940

a. 25.

Melospiza melodia

Cordelia and Suisun Bay, Solano Co., Calif.
July 8.

tules in the fresh-water marsh at the opening of Green Valley Creek right in Cordelia.

Proceeded to the salt marsh about 200 yards away and got series there from reeds, tules.

Very windy, hard to find sparrows; sang intermittently. None had large bills like the 1909 maxillaris.

Decided to go to Grizzly Id. to get some topotypes of maxillaris. Were common in the tules and adjacent rose thickets near the Grizzly King ferry. Collected a series there (salt marsh), but still no thick bills. Have maxillaris birds been swamped out, or is there a seasonal change in the bill size?

Next went to Clear Lake and went out to Stone's camp on the island. Song sparrows everywhere. ON night of 8th went to Mt. Hannah where coll. a goofus owl, see Otus flammeolus.

Marshall, 1941

Melospiza melodia

Solano, Napa, Sonoma, and Marin Counties, Calif.
Jan. 10, 11, 12.

George Bartholomew and I left Berkeley in the ford with camping equipment at 3 pm Jan 10. Arrived at sw se corner of L. Chabot about an hour before sunset. The Lake is high and the large patch of tules is out from shore about 5 - 10 yards. A large mixed flock of song-sparrows, lincoln, white-crowned, and savannah sparrows was feeding in the tall grass at the margin of the lake and they flew out to the tules at our approach. Soon became dark. We went to a nearby filling station and inquired about shooting on the lake, which is posted and belongs to the Vallejo Water Co. (The Lake is on the left side of the Sacramento highway, just north-east of Vallejo.) We were told that Mr. MacPherson of 45 Capaliano Street, Vallejo, had shooting privileges during duck season. I called up MacPherson and talked into him about shooting. He was a Cal grad. and had heard of MVZ and J. G.

Camped that night ~~at~~ near Sulphur Springs and heard a horned owl in the Eucalyptus there. Next a.m. went to the s-e corner of the lake - saw an Amer. Eittern fly from the marsh and alight in the field. 2 or 3 song sparrows singing in the tules, and several feeding in the weeds at the edge of the lake - flushed to tules. Also several lincoln sparrows and savannah and crowned sparrows. Collected one Gt. Basin S. Sp. in a baccharis at the edge of the lake. Next walked along 50 yards of a little creek on the east of the highway with tall grass and a few tules - saw no song sp. but about 8 Lincolns and many white-crowns. ~~and~~ ~~see~~ Lincoln sparrows would flush from the grass and fly very low along the ditch and disappear into the weeds. Would mount the tules and look at me when I squeaked. Saw a Fairborn Cormorant flying high and ~~next~~ ~~went~~ eastward - perhaps going to the Suisun Bay.

Went to the n-w end of the lake and coll. 8 s.s. from cattails and willows where the Lake overflows.

Marshall, 1941

Melospiza melodia

Solano Co., Etc.

January 11

Several males singing from time to time - not constantly. A Lincoln sparrow shot in cattails (not preserved). R-c Kinglets and hermit thrushes also seen in wet cattail meadow. In flock of white-crowns in an oak, saw the flesh of a white-throat. Several Varied thrushes here, and a large hermit thrush which I should have collected. All this in the extensive fresh marsh downstream from the overflow of the lake. Drove to the mouth of this creek and saw that the brush and willows don't come within 1/2 mile of the salt marsh. ~~North~~ Northward, on the highway to Napa and just north of the Napa Co. line was a creek whose willows went far down towards the marsh, but were separated from it by a pasture. Not much brush along this stream due to grazing, therefore probably few if any song sparrows. Drove from Napa Junction to Cutting- Green Id. where the r.r. crosses the Napa R. No creeks here, and a large dyke built along the east margin of the river, so that no longer an extensive salt marsh on the west side of the river.

Went to Jameson Canyon, Napa Co. and coll. 7 song sparrows from the large grove of willows in the rich growth of vines and willows along the r.r. track. None singing - rather windy, but several called from time to time. Drove back to the Napa highway and looked at every creek flowing west toward the marsh, but none came near it at all, although one can easily suppose that before the river was dyked off and the stream sides grazed, there could have been a contact between willows and marsh at each stream. At Suscol Creek was an extensive patch of willows and brush along the creek only about 3 or 400 yards from the salt slough (dense tules) where many black, heavily-streaked song sparrows were seen - two at very close range. As usual, the ~~tule~~ birds very tame and curious of squeaks. But no song sparrows were seen along the creek - perhaps too narrow a line of brush. Yet looked as good as San Pablo Creek - one would certainly expect a few pairs here. This

Melospiza melodia

Northern Contra Costa Co., Calif. Jan. 20, 1941
 John Chattin and I started from Berkeley at 1 pm and drove directly to Selby. Cloudy and windy. Walked up Canga del Cierbo - very wet - to willows at west-end-of-the-lake east end of the little lake 2 mi. S Selby. Artificial Lake, about 50 yards in diameter, cattails around 3 sides, willows and wet meadow at upper end quite extensive patch. Shrubbery and vines at base of each willow - rest, grassy and open. One large flock white-crowned sparrows seen - about 50. 2 Bewick Wrens, several r-c kinglets, 1 hermit thrush, 6 Varied Thrushes, one shrike, 6 Spotted Towhees. When we first arrived, 2 song sparrows were singing. Then wind came up more and we heard only 3 or 4 more sing in the next hour and a half. Collected 6, getting them the 2-man method (one chasing them out of cover, the other shooting). Also one m.m. morphna and one Lincoln Sparrow, which as usual was in a patch of weeds in the open. He flushed it and it flew to the shrubbery along the creek, where it ran along mouse-like when we tried to drive it out - head and tail low, kept under cover as if along Microtus trails even when going from one clump of bushes to another. Hundreds of Triturus - many copulating - males on top, lighter and covered with smooth secretion, cloaca everted and joining with female's. Females dark, rough, not slimy. Chattin count about 15.

Song sparrows hid in shrubbery at bases of willows - would call sometimes when squeaked at and each time that the flock of white-crowns would go thru.

Drove to Port Costa. No salt marshes from Selby on. At Ft. Costa, may once have been a salt marsh at mouth of the narrow valley that opens to bay at edge of town - but now all a railroad yard. Good soft chaparral habitat for upland as on each north-facing valley from Selby around to Martinez. Good riparian habitat with willows in each northward running canyon. Above port Cost a reservoir with Cattails. The only Salt marsh is at Martinez -

Melospiza melodia

Martinez, Contra Costa Co., Calif. Jan. 20.
 a large one running west from the town for about
 a mile. Separated from the hills by S.F. tracks.
 At the mouth of a little valley 1 mi. N. town
 a good riparian habitat comes down to the
 tracks. Many ss. An excellent place to study
 intergradation.

The salt marsh here is about 60 yards wide
 with lots of song sparrows singing, calling,
 chasing each other, twittering. Heard 3 or 4
 Lincoln sparrows, several rails, saw 6 marsh
 wrens. Chatterin and I coll. 8 ss. from the
 salt marsh which consists of tules and cattails;
 and openings of bermuda grass and some salicornia.
 Another little canyon just west of this
 also brings the upland habitat to the edge of
 the marsh. The first canyon mouth has a front
 of willows, vines, and shrubbery about 40
 yards, separated from the marsh only by the
 tracks. Farther up the canyon we saw a horned
 owl fly up to a Eucalyptus (before sunset).
 Perched on bare stub 30 feet up. S.s. and other
 birds gave alarm notes. After collecting the
 song sparrows, which squeaked up easily, it
 was dark, and we returned to Berkeley, via
 Franklin Canyon.

Flushed a snipe at the edge of the willow
 thickets at the lake in Canada del Cierbo. It
 gave the rough c y. Seen ~~ret~~ again 5 min later
 as flew back over the willows and called once
 more. -Cold, cloudy, and windy.

Specimens: 1170 - 1185.

Sobranete, Contra Costa Co., Calif. Jan. 26

Cal., clear, warm, and sunny. Drove in
 the afternoon with Frank Watson to Sobranete to
 look at the salt marshes along the north edge of
 this peninsula west of Pinole. Are fairly con-
 tinuous for about a mile and vary from 75 to
 100 yards in width. Used to extend inland up
 each valley, but now cut off by the railroad
 bed. West of Sobranete, they are pure salicornia
 with no song sparrows - because sal. very short.
 East, have much Grindelia too - the higher type
 of marsh with no tules. Song sparrows abundant
 in the grindelia. Several singing. One singing

*Melospiza melodia*Sobranite Jan 26

from eucalyptus tree overlooking marsh at Sobranite. On a little hill back from the marsh on the west side of Sobranite, a pair was found in brush piles and weeds. Male singing from eucalyptus stumps. Male heavily streaked, female very small and not streaking. Appeared to be entirely independent of the salt marsh habitat. These were the only song sparrows seen away from the marsh. There was one line of willows along a creek 3 mi. above Sobranite, but no song sparrows. Little if any habitat available for upland song sparrows on the entire peninsula. Collected 5 song sparrows (1186-1190) from the grindelia thickets along the small sloughs. Squeaked up readily.

In brush piles with the song sparrow pair was a roving flock of about 10 house sparrows; many golden and white-crowns, one fox sparrow, 10 juncos. In patch of bushes at edge of marsh were r-c kinglets (one making fly-catching flights into the air from the low weeds) willow and green-backed goldfinches, myrtle and aud. warblers. Flicker, varied thrush, robin and the juncos seen in the eucalypts with house finches. Many cans off shore with willets and godwits along edge.

This high grindelia salt marsh is a good pure habitat for samuels song sparrow as no chance for mixing with upland forms. The specimens all very much alike - unusual in this respect.

Went to the salt marsh at Finole - a good grindelia and salicornia habitat - all confined to the bay side of the r.r. tracks now - no contact with any upland habitat. Probably a good pop. of samuel's s.s. here.

On the way out, saw two buffle-heads on a flooded field on the south side of San Fabio creek on the east side of the highway. A man was trying to stalk them. They would fly, take a long flight and return to the lake.

At Garrity Creek, just south-west of Finole the willows are separated by the r.r. tracks from and pasture from the bay marsh which is very narrow here, if it exists at all.

September 28, 1940

Mocker (Berkeley)
Canyon:
Fox Sparrow
Rufy-cr. Kinglet
Winter Wren

*Melospiza melodia*Napa Co.Jan 11

patch a riparian growth separated by a mile or more of bare stream bed from the willows on the ~~le~~ east side of the highway. We searched very carefully, however, and saw none. A large flock of white-crowns seen, however, and I ~~cea~~-caught a good glimpse of a bird with a very prominent white superciliary stripe extending far back on the head which was undoubtedly a white-throat. Saw several w. Bluebirds on the hillside.

Tulucay Creek ends in a large pasture. The Napa river itself is bare of song-sparrow habitat for a mile downstream from town - ~~1/1~~ probably no song sparrows until the first tales, of the salt slough.

Marshall, 1941

a 32.

Melospiza melodia

Pinole, Contra Costa, Calif. April 6
12 m. at Pinole RR. Station. Tracks
run along salt marsh about $\frac{3}{4}$ mi.
long and 75 yds. wide. Rich
growth Salicornia

Empidonax difficilis

U.C. Campus, Berkeley, Alameda Co., Calif. Apr. 4, 1970

10:35 25' up in 1st large Laurel E of
junction of N & S Fks Strawberry Cr. on
S Fk. - at S edge eucal. grove. Foraging.
Still for $\frac{1}{2}$ min or more. Then flies, catches,
& gives pee-est at intervals a
slight sic, or seek. Only 1 heard.
Quivers wings & tail after and as alights.
Calls just after alighting. (at least 2
downys here)

11:58 AM One in old cr. bed E
Corwell. Foraging in low Catalina cherry
near (10') Laurels 75 yds. upstream
from Sr. Women's hall.

seek; seek no pee-est
Upright posture.

~~March~~ April 6, 1940

Strawberry Creek, from Stadium to
Enc. Grove!

23

8:30 Song Sparrow singing in Cat. Cherry opposite
Senior Women's Hall.

8:40 2 Song Sparrows - Woman's Faculty Club.

8:55 Back door Faculty Club - ♂ singing in
little yard. Heard again at 9:15

8:50 W Flycatcher - Laurels between Bridge
& Senior men's hall

First in Potosporum NE corner Senior men's
Hall, then down to Laurels NE corner
Faculty Club - then back upstream.

See peewee tick ^{stick 2 syl.}, order varied

1 ♀ Allen Hummer. → Ranges thru

Entire Oak & Laurel growth from
Faculty Club to Woman's Fac Club.

And Faculty Glade.

9:20 Song Sparrow Hearst Bldg.

9:45 " " above " "

10:20 " " Sather Gate - Oak just W

" " " 1/2 between " & Music Bldg.

One opp. LSB.

S side Eucalyptus Grove 2 W own
in laurel nest cavity 1/2 built
on laurel slab - facing E - both birds
work - get 1/2 in, peck, throw out chips

~~W~~ 5 side Enc. Grove - No
W. Flycatcher

11:25 S.s.p. W L.S.B. at oak,
flew back downstream &
sang from Blackberry vine.

W. Flycatcher - just perched
at S H Willey

Redwood. No song
in oaks & Laurel. Moved
up to SW side Harland.

11:30 Ss. at Stream near Gammie

In Top Buckeye - head held high
when singing; tail down
straight.

Marshall, 1940

Pipilo maculatus

U. campus, Berkeley, Alameda Co., Calif.
March 3, 5:15 PM. Clear, calm, sunny.

In eucalyptus in valley between
Haviland & Library a ^{song} ~~note~~ heard:
peep, peep, peep-peep-peep, 5 notes
separate, in increasing speed; each
similar ^{in quality} to the ordinary call of the
robin (see see see-cook-cook) but
lacking the inflection & explosive
quality of the robin's note. A little
less than 2 seconds' duration, same
pitch as robin's ordinary single
call. Each song given about 3-5
or more sec. after previous one.

Lowee seen about 30' up in
eucalypt. on open twig near trunk.
Perched upright, tail vertical; head
held high & bill pointing slightly
upward at each song. Body
~~note~~ shakes or swells at each note.
Presently moved to higher limb
where sang about 5 more times,
this time only 3 or 4 notes in
succession. Many robins in
tree, calling with ~~or~~ notes. Also many
siskins & Calif. Purple Finches feeding
on blossoms. a ♂ " " singing on
top-most twig.

Marshall, 1940

Sporus naevius

U.C. Campus Berkeley, Alameda Co, Calif.

March 16, 1940 at w edge creek
on west border of eucalyptus
grove, a varied thrush flushed
from ground where feeding with
juncos, a song sparrow, white-
crowned sparrows. Flew up creek
25 yds & alighted & foraged on
leafy humus under dense overhead
cover of trees. Hopped several
steps, ^{stopped} drew up erect then ahead
again, etc. Flew into tree where
seen for about a minute.

Marshall, 1941

Selasphorus rufus

Campus U.C., Berkeley, Alameda Co., Calif.
April 15 : 7:00 AM Saw T. rufus
hummer around blooming shrubs
S Holgate Hall. Perhaps makes
more ^(snailing) buzzing than Allen. Did
a few display dives, all red
on back. [Saw + heard
a combined flying over campus.]

Marshall, 1942

Dryobates villosus

U.C. Campus, Berkeley, Alameda Co., Calif.

July 10

At 8:30 am. heard loud "chink" call note (single) from cypress & Eucalyptus at north-east side Greek Theater. Traced birds to lambs in little ravine at base hill where Cyclotron is. Called there also downies, latter (at least one) flew off towards Gr. Theater, but loud calls kept coming from lambs. Turned out to be 2 hairies - large size, loud "chink" call, white outer tail feathers, whining call all on same pitch, loud tapping. Rather wary - moved on ahead of our 113 group - once flew across grassy hill to another grove eucalyptus, then back - typical undulating flight. Followed them for about $\frac{1}{2}$ hr. they worked thru Eucalyptus to Cyclotron, then in grove fruit trees & grove pines. In a given grove, worked away from us ^{from} tree to tree, then on to next grove - both always keep together. Finally flew north from top hill and alighted in willows on a spur of N. Strawberry Creek.

.

27

.

.

.

.

Marshall, 1942

Dryobates villosus

July 18

Miner Woods, Marin Co., Calif.

Several heard in Redwoods. Also
Band-tailed Pigeons, Crows, Winter
Wrens, Hermit Thrushes, 2 Calif.
Woodpeckers.

July 22

Berkeley, Alameda Co., Calif.

1 heard & seen at College
& Durant Sts., 7:30 am.

Marshall, 1942

Ammodramus savannarum

Bald Peak (east of Grizzly Pk.), Contra Costa Co., Calif.

June 21

Sunny, calm, am. about 8 seen, ♂'s widely spaced, in grassland on n-e side peak. ♂'s sang from tops any bushes striking above level of grass - song a dry buzz. Forage by alighting in grass, walking around without a sound or without disturbing grass. Flush at about 3 or 4 yards. Only once able to see a bird on the ground. Often start to forage by flying to a bush, then hopping thru it to the ground. Flush at same spot or up to 20 yds away - this last rather than merely flying straight to a patch of grass & alighting in grass. Sang often from rocks. Often ♀ near the singing ♂'s, sometimes both on adjacent rocks.

July 10 Northfork Strawberry Creek, Berkeley, Alameda Co., Calif.

One pair only on grassy hill between Cyclotron & n. fork. ♂ singing often from thistles, lanceolais, or rocks up in the grass & artenaria habitat. ♀ often flushed near ♂. Perch with body & bill horiz. tail down, head hunched back - V meadowlark.

Marshall, J. T.

Catalog of specimens
1941

Marshall, 1941

Barn Owls at
Car Barns - Telegraph St.
Oakland

Catalog

Solbrante, Contra Costa Co., Calif.

January 26

- ✓ 1186 ♂ ^{some fat} *Melospiza melodia* (as usual, the rt. testis 7 mm. larger) 18.8g.
✓ 1187 ♀ "
✓ 1188 ♂ t. 5.5 mm fat- " "
✓ 1189 ♂ ^{rt. dark} t. 8 mm fat- " "
✓ 1190 ♀ ova 1.3 mm fat " "

(another seen in *Grindelia* which had very few spots. ^{was} very tame, probably an im.)

~~Elk~~ Valley, Marin Co., Calif.

February 9

- 1191 ♂ *Uremivora celata sordida* fat 10.1g.
✓ 1192 ♂ t. 4.3 *Melospiza melodia* ^{not much fat} at creek bank 21.8g.
✓ 1193 ♀ ova 1.3 mm " " fat 18.7g.
✓ 1194 ♂ im t. 2.5 " " " 20.0g.
✓ 1195 ♂ t. 5.0 mm " " ^{no fat} shot by Bill Galey 20.7g.
✓ 1196 ♂ t. 7.0 mm " " " 21.2g.
✓ 1197 ♂ t. 4.0 mm " " not fat 20.1g.
✓ 1198 ♂ t. 3.5 " " " 21.7g.

Richmond Hills, 1/2 mi E San Pablo Pt., Contra Costa Co., Calif.

March 9, 1941

- 1199 ♂ *Melospiza melodia*
1200 ♂ "

Berkeley, Alameda Co., Calif. died in captivity at M.V.Z.

- 1201 ♂ *Zonotrichia albicollis*

Marshall, 1941

Catalog

Las Pasadas Camp, 2 mi SE Anguin, Napa Co., Calif.

March 22 23

1202 ♀ *Certhia familiaris* carrying nesting fuzz egg mass about 3 mm. 6.9g.

March 22

1203 ♀ *Amphispiza belli* 13.1g.

1204 ♀ *Passerella iliaca* coll. by S. Benson 35.8g.

1205 ♂ *Chondestes grammacus*

March 23

1206 ♂ *Melospiza melodia* 19.5g.

1207 ♂ *Amphispiza belli* 13.5g.

1208 ♂ *Spizella passerina* 12.0g.

1209 ♀ *Selasphorus* rather large ov. 3.2g.

1210 ♂ *Tachycineta* 14.3g.

1211 ♂ testes minute *Dendroica auduboni* 12.4g.

1212 *Dryobates villosus* 62.3g.

4 mi. SW Fallon, 4000 ft., Churchill Co., Nevada

March 28

1213 ♂ *Penthestes gambelii* fat

1214 ♂ " " "

1215 ♂ " " very fat

Carson River
14 mi W Fallon, 4000 ft., Churchill Co., Nev.

1216 *Spinus tristis* very fat

1217 ♀ " "

4 mi W Fallon, 4000 ft., Churchill Co., Nev.

1218 ♀ ov. sm. ~~Passer domesticus~~ Poocetes

March 30

1219 ♂ + 2. Passer domesticus

Marshall, 1941

Catalog

Pinole (salt marsh) Contra Costa Co., Calif.

April 6

1220 ♂ *Melospiza melodia* testes 8mm. 17.7g.

1221 ♂ " " testes 9mm. 18.9g.

Martinez (salt marsh) Contra Costa Co., Calif.

1222 ♂ " " testes 7.5mm 19.7g.

1223 ♂ " " " 9mm 19.6g.

✓ 1224 ♂ " " " 8mm 19.7g.

✓ 1225 ♀ " " largest ovum 2.3mm 22.3g.

✓ 1226 ♀ brood patch " " " 2 - " 19.7g. ✓

U.C. Campus, Berkeley, Calif. (Alameda Co.)

April 6?

1227 ♀ *Passerella iliaca* from Harvey Fisher 33.3g.
Hills n-~~to~~ Lake Temescal; Oakland, Alameda Co., Calif.

April 11

1228 ♂ *Sitta canadensis*

1229 ♂ *Vermivora celata lutescens*

Berkeley, Alameda Co., Calif.

April 13

acc 6509
1230 ♂ *Calypste anna* from Miss Hope Gladding after 3 days 3.9g. ✓

April 15 (U.C. Campus)

1231 ♂ t.i. *Spinus pinus* green (buds) in stomach 12.0g.

467 ~~Bo~~ ~~feed~~ Berkeley, Alameda Co., Calif.

April 17

acc 6513

1232 ♂ *Vermivora celata*

Bay Farm Island, (salt marsh) Alameda Co., Calif.

April 19

1233 ♂ *Melospiza melodia*

Marshall, 1941

Catalog

Orange Co., Calif. (acc. 6519)

acc 6519

April 13

collected by P. D. Hurd

- 1234 ♂ *Melospiza melodia* (Newport Bay)
1235 ♂ " " (Santa Ana) 20.4g.
1236 ♀ " " (Newport Bay) 19.0g.
1237 ♀ " " (Santa Ana) 17.7g.

acc. 6520

1238 ♂ *Gavia a. pacifica*

brought in by Mrs. Kelley
1254g.

U.C. Campus, Berkeley, Alameda Co., Calif.

May 4

1239 ♀ *Myiarchus cinerascens*

on the 6th
28.4g.

Hills W. Richmond, Contra Costa Co., Calif.

May 6

- 1240 ♂ *Salasphorus alleni* 2.8g.
1241 ♀ broad patch *Zonotrichia leucophrys* base culmen, lower mandible, orange 32.6g.
1242 ♀ *Dendroica nigrescens* Hill S. Richmond Yacht Harbor 8.8g.

Canyonville, Douglass Co., Ore.

May 15

- 1243 ♂ *Chondestes virens* pickup in road 23.0g
7.5 mi. S Cannon Beach, Clatsop Co., Ore., 50' ft.

May 17

- ✓ 1244 ♂ *Larus occidentalis* 1356g.
1245 ♂ t.l. *Ixoreus* 79.4g.
1246 ♂ t.l. " 75.5g.
✓ 1247 ♂ t.l. *Turdus* 85.3g.
✓ 1248 ♂ t.l. *Turdus* 89.6g.



Marshall, 1941

Catalog

50 ft. 7.5 mi. S Cannon Beach, Clatsop Co., Ore.

May 18

1249	♂	Melospiza	melodia	22.4g.
1250	♂	"	"	24.4g.
1251	♂	"	"	23.3g.
1252	♀	"	"	brood patch 22.3g.
✓ 1253	♂ 7.9.5mm	Cyanocitta		134.5g.
1254	♂ ^{ad} 7.1.	Psaltriparus	iris brown	5.5g.
1255	♂	Wilsonia		6.9g.
1256	♂	"		7.6g.
1257	♀	Spinus tristis		12.1g.
1258	♀	Dryobates pubescens		31.4g.
1259	♀	" villosus		65.1g.
1260	♀	"	"	67.4g.

~~Permitted deposit to US Nat. Mus. - (to A Wetmore 12/3/41)~~

May 19

✓ 1261	♂ 7.1.	Empidonax	difficilis	10.9g.
✓ 1262	♂ 7.4mm	Loxia	curvirostra	26.6g.
✓ 1263	♀	Dryobates pubescens		30.2g.
1264	♀	Cyanocitta	belly bare ovary rather sm	117.9g.
1265	♂ one t. = 11mm	"	"	136.0g.

May 20

1266	♀	Ixoreus		89.6g.
1267	♀	"		103.0g.
✓ 1268	♂	"		26.5g.
✓ 1269	♂	Hylocichla ustulata		32.2g.
1270	♂	Carpodacus	purpureus (singing)	23.2g.
✓ 1271	♀ brood patch	Chamaea fasciata		16.3g.
1272	♂	Psaltriparus	iris cream	5.5g.

Marshall, 1941

Catalog

50 ft., 7.5 mi. S Cannon Beach, Clatsop Co., Ore.

May 20

- ✓ 1273 ♂ t.l. Wilsonia 7.4g.
✓ 1274 ♂ Melospiza melodia 27.0g.
✓ 1275 ♂ t=3mm, black brood patch Chamaea fasciata 15.6g.
✓ 1276 ♂ Spinus tristis 14.2g.
✓ 1277 ♂ Dendroica auduboni nesting 12.2g.

May 21

- ✓ 1278 ♂ Vermivora celata 8.7g.
possibly lost 1279 ♂ Wilsonia 7.6g.
1280 ♂ t=10mm Cyanocitta 132.4g.
1281 ♂ t=9mm " 131.7g.
1282 ♀ ♂ t=7mm " 125.5g.

May 20

- 1283 alc Thamnophis
1284 alc Triturus

4 mi S Seaside, 200 ft., Clatsop Co., Oregon

May 22, 1941

- ✓ 1285 ♂ Thyomanes (50 ft.) 11.5g.
1286 ♂ Certhia 8.0g.
1287 ♂ " 8.3g.
1288 ♂ " 8.1g.
1289 ♂ Junco 18.3g.
1290 ♀ brood patch " 18.8g.
1291 ♂ Turdus 91.8g.
1292 ♂ Cyanocitta 132.1g.
1293 ♂ Dryobates villosus 72.7g.
1294 ♂ " " 72.2g.

Marshall, 1941

Catalog

Necanicum R., 5 mi. SSE Seaside, 75 ft., Clatsop Co., Ore.

May 23

- ✓ 1295 ♂ Vireo huttoni 11.3 g.
✓ 1296 ♀ " " 12.0 g.
✓ 1297 ♂ Junco 17.0 g.

Seaside, Clatsop Co., Oregon

- ✓ 1298 ♂ Dendroica aestiva 10.0 g.
✓ 1299 ♀ Euphagus 57.0 g.
✓ 1300 ♂ Agelaius 71.2 g.
✓ 1301 ♀ " 43.0 g.
1302 ♀ " 44.7 g.

Necanicum R., 5 mi. SSE Seaside, 75 ft., Clatsop Co., Oregon.

- ✓ 1303 ♂ Otus asio 156.9 g.
beetles in stomach, stom. saved all bones intact - humeri & tarsi in skin, + body skel.

May 24

- ✓ 1304 ♀ Dendroica nigrescens 8.7 g.
✓ 1305 ♀ Certhia brood patch 9.7 g.
✓ 1306 ♀ Xoreus brood patch 77.7 g.

3 mi. N Seaside, 50 ft., Clatsop Co., Oregon

- ✓ 1307 ♀ Colaptes collected by Russell -

Necanicum R., 5 mi. SSE Seaside, Clatsop Co., Ore.

- ✓ 1308 ♂ Dendroica auduboni 13.1 g.

May 23

- 1309 Triturus
1310 " } alcohol
1311 " }
1312 " }

May 24

- ✓ 1313 ♀ Otus asio 197.0 g.

Marshall, 1941

Catalog

3 mi. N. Seaside, 50 ft., Clatsop Co., Oregon

May 25

- ✓ 1314 ♂ *Dendroica aestiva* testes 4.5 mm 9.0g.
✓ 1315 ♂ " *auduboni* 12.0g.
✓ 1316 ♂ " " 11.5g.
✓ 1317 ♂ *Thryomanes* 12.2g.

7 mi. SE Rainier, 100 ft., Columbia Co., Oregon

- 1318 *Myotis* pickup

May 26

- 1319 ♀ *Sorex trowbridgei* ^{under log} 115-53-13-9.5 6.3g.
1320 ♀ " *bendirei* 188-85-23-11.5 25.1g.
1321 ♂ *Microtus oregoni* ^{under log} 137-34-12-11 25.8g.
1322 ♀ " *longigaudus* ~~*longicaudus*~~ 160-44-23-15 37.3g.
1323 ♀ *Peromyscus* ^{not at edge water} 180-91-20-17 21.0g.
1324 ♂ " — — 20-15 16.2g.
1325 ♂ " 197-106-21-17 18.0g.
1326 ♂ " 195-102-21-18 23.7g.

~~1327 *Sorex bendirei* (prepared by W.C. Russell)~~

- 1328 ♂ *Empidonax traillii* 13.4g.
1329 ♀ *Vireo huttoni* 11.8g.
1330 juv *Rallus* 26.1g.

May 27

~~1331 *Peromyscus* (prepared by W.C. Russell)~~

- 1332 ♂ *Neurotrichus* 113-40-14- — 8.9g.
1333 ♂ *Clethrionomys* ~~*Rhysacomya*~~ 165-61-20-12 24.1g.
1334 ♂ *Clethrionomys* 153-55-19-11 20.9g.
~~1335 *Sorex trowbridgei* (prepared by W.C. Russell)~~
1336 ♂ *Zapus* 233-138-32-13 23.2g.

$$\begin{array}{r} 215 \\ 120 \\ \hline 95 \end{array}$$

Marshall, 1941

Catalog

7 mi. SE Rainier, 100 ft., Columbia Co., Oregon
May 27

1337	♂?	<i>Sorex vagrans</i>	106·40·13·5	4.3g.
1338	♂	<i>Sorex bendirei</i>	175·77·20·8	24.5g.
1339	♀	" "	173·78·21·5	16.1g.
1340	♂	<i>Pipilo maculatus</i>		43.3 g.
1341	♂ t.5mm	<i>Sphyrapicus ruber</i>		

May 28

1342	♂?	<i>Sorex obscurus</i>	117·45·15·7	9.2g.
1343	♂	<i>Microtus oregoni</i>	127·31·16·10	18.4g.
1344	♂	<i>Sorex bendirei</i>	168·72·21·9	24.8g.
1345	♂	<i>Peromyscus</i>	189·89·21·17	22.2g.
1346	♀	<i>Zapus</i>	226·131·31·14	22.5g.
1347	♂	<i>Peromyscus</i>	196·105·22·17	21.3g.
1348	♂	<i>Spizella passerina</i>		13.0g.

May 29

1349		<i>Hylocichla ustulata</i>		24.5g.
1349	♂	<i>Otus asio</i> testes 7mm.		171.5g.
1350	♂	<i>Sorex vagrans obscurus</i>	130·55·14·8	8.3g.

May 29
in H₂O

Please note in Howdy Benny	1351	♂	<i>Sorex bendirei</i>	162·71·21·8	21.7g.
	1352A	♂?	" <i>obscurus</i>	—·54·14·7	—
	1352B	♂	" <i>bendirei</i>	177·77·20·8	23.0g.
	1353	♀	<i>Zapus</i>	237·139·31·13	28.0g.
	1354	♂	"	body = 95 215·120·32·15	23.4g.
	1355	♀	"	245·149·32·15	23.2g.
	1356	♂	<i>Geothlypis</i>		10.0g.
also	1357		<i>Triturus</i>	alcoholic	

12

12

12

12

12

for thymus 11.13

Marshall 1941

Catalog

2 mi. SE Rainier, 100 ft., Columbia Co., Oregon

May 29

alc.					
1358		Hyla	alc.		4.0g.
✓ 1359	♂	Otus asio	testes 10 mm.		159.0g.
✓ 1360	♀	brood patch.	"		187.0g.
✓ 1361	♀	"	feathers growing back into brood patch		180g.

May 30

1362	♂	Microtus oregoni	133.40.22.11		17.3g.
1363	♀	Sorex townsendi	118.53.13.8		6.1g.
1364	♂	" obscurus	132.56.14.7		9.8g.
1365	♂	" (?)	122.60.13.7		4.4g.
1366	♂	" (?)	123.53.13.7		4.9g.
1367	♂	Peromyscus	195.95.22.18		25.9g.
1368	♂	"	185.88.21.17		20.8g.
1369	♀	"	201.101.21.17		20.2g.
✓ 1370	♂	Thryomanes			11.1g.
✓ 1371	♀	" brood patch			10.2g.
✓ 1372	♂	Empidonax hammondi			10.3g.
1373	♂	Dendroica nigrescens			8.5g.
✓ 1374	♂	" occidentalis			10.2g.
✓ 1375	♂	Hylocichla ustulata			31.0g.

May 31

1376	♂	Penthestes atricapillus			10.0g.
1377	♂	" "			10.8g.
1378	♀	" "			9.2g.
1379	♀	" "			11.0g.
1380	♂	Sorex townsendi	122.57.13.8		5.7g.
1381	♂	" obscurus	129.52.14.7		8.6g.

Marshall, 1941

Catalog

1 mi. SE Rainier, 100 ft., Columbia Co., Oregon

May 31

1382 ♀? *Sorex obscurus* (?) 125.59.13.8 4.6g.
~~1383 ♂ *Aplodontia*~~
~~1384 ♂ *Sciurus*~~

May 30

1383 ♂ *Aplodontia* 305.25.49.21 770g.
309.18.50.22 832g.
1384 ♂ *Sciurus* May 31 337.135.48.22 255.9g.

May 30

1385 ♂ *Sciurus* 330.135.50.25 260.8g.

June 1

1386 ♂ *Aplodontia* 309.18.50.22 832g.
1387 ♂ *Microtus* ^{open and near stream} ~~longicaudus~~ *longicaudus* 214.76.25.14 53.4g.
1388 ♂ " *longicaudus* 202.74.26.13 44.0g.
1389 ♂ " ^{grass} *oregoni* 134.34.17.10 17.8g.
1390 ♀ " ^{grass} " 130.134.11.10 20.6g.
1391 ♂♂ *Sorex vagrans* 103.39.12.6 4.6g.
1392 ♀? " " 107.45.13.7 4.8g.
1393 *Rana*

June 2

1394 ♀ *Sorex obscurus* 115.44.14.8 7.0g.
1395 ♂ " " 135.54.15.8 10.7g.
1396 ♀ " [*vagrans*(?)] 120.50.15.7 4.6g.
1397 ♀ " " 115.51.14.7 6.5g.
1398 ♂ *Certhia* • 9.1g. ~~9.7g.~~

June 3

1399 ♀ *Sorex obscurus* 126.54.14.7 9.4g.
1400 " *vagrans*(?) 115.52.13.7 4.3g.

Marshall, 1941

Catalog

7 mi. SE Rainier, 100 ft., Columbia Co., Oregon

June 2

✓ 1401 ♂ *Dendroica nigriceps* 9.8 g.

Detroit, Marion Co., Oregon June 3

✓ 1402 ♀ (br. p.) *Euphagus* brood patch 56.0 g.

North Santiam River, 3400 ft., Lincoln Co., Oregon

June 4

✓ 1403 ♀ ^{ovum 4 mm} *Picoides* ^{beginning} *tridactylus* brood patch 59.5 g.

✓ 1404 ♀ *Callospermophilus* 259-90-37-19 • 164.2 g.

✓ 1405 ♂ *Sciurus douglassi* 330-130-50-24 248 g.

+

June 5

~~63.1 g.~~

✓ 1406 ♂ t. 2.5 mm *Perisoreus* 63.1 g.

✓ 1407 ♀ brood patch, ovary 7 mm. *Melospiza melodia* 24.0 g.

✓ 1408 ♂ t. 5 mm *Dendroica aestiva* 9.1 g.

✓ 1409 ♂ t. 8.5 mm. *Hylocichla guttata* 21.0 g.

✓ 1410 ♂ t. 6 mm. *Certhia* 8.8 g.

✓ 1411 ♂ t. 9 mm. *Empidonax traillii* 11.9 g.

✓ 1412 ♀ ovary 6 mm *Melospiza lincolni* 18.3 g.

✓ 1413 ♀ " " " " 17.3 g.

✓ 1414 ♂ testis 10 mm. *Cyanocitta* 124 g.

✓ 1415 *Thamnophilus*

✓ 1416 "

✓ 1417 *Bufo*

✓ 1418 *Rana*

✓ 1419 "

✓ 1420 ♂ *Dryobates villosus* testis 5 mm. 78.5 g.

✓ 1421 ♀ " " ovary 7 mm. 66.1 g.

✓ 1422 ♂ *Dendroica occidentalis* (Hermit) testis large 9.7 g.

Marshall, 1941

Catalog

North Santiam River, 3400 ft., Linn Co., Oregon

June 6

1423		Triturus		
1424		"		
1425		"		
1426		"		
1427		"		
1428		"		
1429		Rana		
✓ 1430	♂	Hyla	June 7 guttata testis 11 mm.	24.0g.
✓ 1431	♀	Junco	ovary 6 mm brood patch	18.0g.
✓ 1432	♀	Perisoreus	griseus ovary 5 mm	63.0g.
✓ 1433	♂	"	testes 1.5 mm. ^{skeleton}	63.5g.

June 7

✓ 1434	♂	Wilsonia		7.4g.
✓ 1435	♂	Loxia	testes 4 mm fat	30.5g.
✓ 1436	♂	Vireo gilvus	testes 5 mm.	11.5g.
✓ 1437	♀	"	no brood patch ovary 6 mm.	11.2g.
✓ 1438	♂	Melospiza	melodia testis 6 mm.	22.8g.
✓ 1439	♀	"	" largest ovum 5 mm.	24.4g.
✓ 1440	♂	Turdus	testes 15 mm.	76.0g.

June 8

✓ 1441	♂	Melospiza	melodia testes 11 mm.	23.0g.
1442	♂	"	lincolni " 9 "	18.0g.
✓ 1443	♀	Dendroica	aestiva fat ovary 4 mm.	9.5g.
✓ 1444	♀	"	" laying	11.2g.
✓ 1445	♂ juv.	Dryobates	villosus testis 1 mm	61.0g.
✓ 1446	♂	Junco	" 7 mm.	18.3g.

Marshall, 1941

Catalog

North Santiam River, 3400ft., Linn Co., Oregon

June 8

- ✓ 1447 ♀ *Oryzobates villosus* feeding young no brood patch ovary 7mm 64.8g.
✓ 1448 ♂ *Hyllocichla guttata* testes 10mm. 24.7g.
✓ 1449 ♂ " *ustulata* " " " 29.5g.

June 9

- ✓ 1450 ♂ *Dendroica aestiva* testis 6.5mm. 9.6g.
✓ 1451 ♂ " " " large 10.2g.
✓ 1452 ♀ " " no brood patch, ovary small, no fat. 9.6g.
✓ 1453 ♂ *Wilsonia* testes large 7.4g.
✓ 1454 ♂ *Certhia* testes 7mm. 8.5g.
✓ 1455 ♂ *Melospiza melodia* " 11mm. 24.5g.
✓ 1456 ♂ " " testes 8mm. 22.1g.
✓ 1457 *Rana*
✓ 1458 ♂ *Ambystoma occidentale* testes 7mm. 520g.

June 10

- ✓ 1459 ♂ *Certhia* testes 6mm 8.3g.
✓ 1460 ♀ " brood patch; ovary small 9.1g.
✓ 1461 ♂ juv. *Perisoreus* testes 1mm. 64.5g.
1462 ♂ ~~Perisoreus~~ *Perisoreus* testes 2mm. 64.1g.
1463 ♂ " " " " 1 yellow 62.0g.
1464 ♀ " " " " 1 black
1465 ♀ " ovary 6mm. brood patch old 57.0g.
1466 ♀ *griseus* ovary small 59.0g.
1467 ♀ " " " " 58.0g.
1468 ♂ " " testes 2mm. 54.5g.

June 11

- ✓ 1469 ♂ *Certhia* mate of 1470 testes 7mm. 58.4g.

Marshall, 1941

Catalog

North Santiam River, 3400 ft., Linn Co., Oregon
June 11

- ✓ 1470 ♀ *Certhia* mate of 1469 brood patch ovary 7 mm. 9.0g.
1471 ♂ *Hylocichla guttata* testes 10 mm. 22.0g.
✓ 1472 ♂ " " " " 22.1g.
✓ 1473 ♂ " " " " 25.0g.
✓ 1474 ♂ *Cyanocitta* " 10 " 132.0g.
1475 ♀ *Perisoreus* old brood patch, ovary 9 mm. 56.0g.
✓ 1476 ♂ *Corvus corax* testes 5 mm. 100.0g.
→ stomach full of frog bones & beetles.

June 10

- 1477 ♂ *Strix* testes 8 mm. 56.5g.

4 mi. N & 9 mi. W Sisters, 4000 ft., Deschutes Co., Ore.

June 12

- 1478 ♂ *Wilsonia* testes 8 mm. 7.5g.
✓ 1479 ♂ *Hylocichla ustulata* " 11 mm. 30.0g.
1480 ♂ *Cyanocitta* " 10 mm. 122.2g.
1481 ♂ *Hesperiphona* very fat " 12 mm. 58.0g.
1482 ♂ *Sphyrapicus varius* " 5 mm. 56.0g.
1483 ♂ " " " 7 mm. 55.0g.
1484 ♀ " " ovary small 52.5g.
1485 ♀ *Melospiza lincolni* brood patch " 10 mm. 19.5g.
1486 ♂ *Otus flammeolus* testes 7 mm. 55.8g.

June 13

- ✓ 1487 ♂ *Dendroica auduboni* testes 9 mm. 12.4g.
1488 ♀ *Certhia* brood patch ovary 5 mm. 8.6g.

June 14

- 1489 ♂ *Certhia* testes 6 mm. 8.1g.
1490 ♂ *Dendroica occidentalis* testis 8 mm. 9.8g.

Marshall, 1941

Catalog

4 mi. N + 9 mi. W Sisters, 4000 ft., Deschutes Co., Ore.

June 14

- ✓ 1491 ♀ *Cyanocitta* brood patch ovary 11 mm. 126 g.
✓ 1492 ♂ *Perisoreus griseus* testes 2 mm. 62.5 g.
✓ 1493 ♂ " " " " 62.5 g.
✓ 1494 ♀ " " no brood patch ovary 4 mm. 57 g.
✓ 1495 ♀ *Dryobates villosus* ovary small 67.5 g.
✓ 1496 ♂ *Otus flammeolus* testes 7 mm. 60.0 g.
skel + skin

tail 70 rt wing 143 culmen about 14

tarsus 26 l. wing 142

7 mi. NW Sisters, 3300 ft., Deschutes Co., Oregon

June 15

- ✓ 1497 ♂ *Passerella* testes 11 mm. 29.0 g.
✓ 1498 ♂ *Melospiza melodia* " 9 mm. 21.5 g.
✓ 1499 ♀ " " laying 26.0 g.
1500 ♂ *Sitta carolinensis* testes 5 mm. 16.7 g.
1501 ♂ " " " 4 mm. 16.5 g.
✓ 1502 ♀ " " ovary 6 " 15.0 g.
1503 ♂ } *Certhia* testes 5.5 mm. 7.8 g.
1504 ♀ } pair " laying 7.7 g.
1505 ♂ *Hylocichla ustulata* testes 12 mm. 30.1 g.
1506 ♂ *Spizella socialis* testes 6 mm. 50.2 g.
1507 ♂ *Cyanocitta* testes 6.5 mm. 126.5 g.
4 mi. N, 9 mi. W Sisters stom.: 1 orthopteran
1508 ♂ *Otus asio* " 8 mm. 153 g.
4 mi. N, 9 mi. W Sisters
1509 ♀ " " orthopteran ovary 13 mm. 199 g.
9 mi. N, 9 mi. W Sisters
1510 ♂ " *flammeolus* testes 7 mm. stom saved 57.2 g.

Breitenbush Lake, 5500 ft., Marion Co., Oregon

June 17

- ✓ 1511 ♂ *Dendroica auduboni* 13.0 g.

Marshall, 1941

Catalog

Breitenbush Lake, 5500 ft., Marion Co., Oregon

June 17

- ✓ 1512 ♂ *Dendroica auduboni* testes 8.5 mm. 12.4g.
✓ 1513 ♂ *Ixoreus* testes 13 mm. 55.3g.
✓ 1514 ♂ " " " 77.6g.
✓ 1515 ♂ " " " 77.7g.
✓ 1516 ♂ " " 14 mm. 84.1g.
✓ 1517 ♂ *Dendroica auduboni* testes .6 mm 12.6g.
✓ 1518 ♂ " " " .5 mm 12.4g.
✓ 1519 ♂ " " " .4 mm 12.3g.
✓ 1520 ♀ " " ovary small 11.2g.

June 18

- ✓ 1521 ♀ *Oryzates villosus* old brood patch ovary 7 mm. 68.5g.
1522 ♂ *Marmota* 455-133-73-21 961g.
✓ 1523 ♂ *Oryzates villosus* (coll W.C.R.) testes 4 mm. 71.7g.

Anacortes, Fidalgo Co., Washington

June 20

- skel 1524 ♂ *Neurotrichus* 114-35-16- in "pickup"
1525 ♂ *Psaltirgus* testes 3.5 mm. iris white
1526 ♀ *Melospiza melodia* ovary 7 mm. brood patch.
1527 ♀ *Dendroica aestiva* " 5 mm. no " "
1528 ♂ *Turdus* testes 13 mm.

Friday Harbor, San Juan Co., Washington

June 21

- 1529 ♂ *Otus asio* testes 5 mm.

June 22

- 1530 ♀ *Pipilo maculatus* ovary 14 mm.

June 23

- 1531 ♂ *Chondestes* testes 8 mm.

6

6

6

Marshall, 1941

Catalog

Friday Harbor, San Juan Co., Washington

June 23

- | | | | |
|------|---|------------|---|
| 1532 | ♂ | Chordeiles | testes 8 mm. |
| 1533 | ♀ | Otus asio | ovary ¹² / ₁₄ mm. |
| 1534 | ♀ | Asio otus | ovary 12 mm. |

June 24

- | | | | |
|------|--|------------|--|
| 1535 | | Thamnophis | |
| 1536 | | " | |

June 26

- | | | | | |
|------|---|------------|--------------|--------|
| 1537 | ♂ | Chordeiles | testes large | |
| 1538 | ♂ | Carpodacus | | 22.0g. |
| 1539 | ♂ | " | " " | 21.0g. |

- | | | | | |
|------|---|-------------------|---------------------|--------|
| 1540 | ♂ | Wilsonia | testes 7 mm. | 10.5g. |
| 1541 | ♀ | " | laying, brood patch | 19.5g. |
| 1542 | ♂ | Dendroica aestiva | testes 3 mm. | 7.0g. |
| 1543 | ♂ | " | " " | 7.1g. |
| 1544 | ♀ | " | " 3.5 mm. | 7.0g. |
| 1545 | ♂ | Mniotilta | testes 9 mm. | 24.0g. |
| 1546 | ♂ | " | " 10 mm. | 23.7g. |
| 1547 | ♀ | Vermivora celata | ovary 5 mm. | 9.1g. |
| 1548 | ♀ | " | " " " | 8.4g. |
| 1549 | ♂ | Otus asio | testes 3.5 mm. | 150g. |
| 1550 | ♀ | Corvus | | 354g. |

July 1, 1941

- | | | | |
|------|--|------------|--|
| 1551 | | Thamnophis | |
|------|--|------------|--|

July 8

- | | | | |
|------|--|------------|--|
| 1552 | | Thamnophis | |
|------|--|------------|--|

Marshall, 1941

Catalog

False Bay, San Juan I., Washington.

July 8

- 1553 ♀ ad. Petrochelidon 21.0g.
1554 in Dendroica aestiva 9.1g.
1555 juv Passerculus 16.3g.
San Juan Id., Washington (W False Bay)

July 11

- 1556 ♂ Passerculus testes 8 mm. 18.2g.

Friday Harbor, San Juan I., Wash.

- 1557 ♂ Chordeiles testes 7 mm. 64.8g.

- 1558 ♀ ? Otus asio (beetles) 152g.

Shaw Id., San Juan I., Wash. July 20

- 1559 ♂ ad Ceruus 350g.

San Juan Island, Washington

July 27

- 1560 ♂ juv. Otus at Cattle Pt. 114g.
picked up by C. Lewis 114g.

July 31

- 1561 ♂ Otus testes 3 mm 138g.

August 1

- 1562 ♀ juv. Chordeiles pickup by L. Fifer 58g.

August 2

- 1563 ♂ Otus testes 6 mm. 138g.

August 3 (Cattle Point)

- 1564 ♀ im Wilsonia 7.3g.

- 1565 ♂ Colaptes 158g.

- ~~1566 ♀ Chordeiles 62g.~~

Brown's Id. August 11

- 1567 [♀ by plumage - juv-imm.] Dryobates pubescens 26g.

Marshall, 1941

Catalog

Cattle Pt., San Juan Co., Wash

Wednesday

August 13

1568	♂	Sandpiper		25.6g.
1569	♂	"		20.5g.
1570	♂ im	Dendroica auduboni		13.5g.
1571	♂ juv	Certhia		8.5g.
1572	♂	Lopia	testes 5mm	28.7g.
1573		Dryobates		74.6g.
1574	♀ im	Falco sparverius		117g.
1575		Colaptes		143.5g.
1576	♂	Otus	skel. & skin	137g.
1577	♂	"		148g.
1578	♀	skin + skel	wing 178 tail 92 tarsus 34 toe + claw 32 culmen 22 bill from nostril 14.5 depth 12	165g.

Friday Harbor, San Juan Co., Wash (Brown's Id.)

August 19

1579	♂ im	Thryomanes	
1580		Dryobates pubescens	

August 20

1581	♂ im.	Certhia	
------	-------	---------	--

Berkeley

1582 Song Sparrow

1583

"put up for MYZ"

1584

Melospiza melodia

1585

"

Captive

from Friday Harbor

1586

Otus asio

Marshall, 1942

Catalog

Redwood Park, Oakland, Alameda Co., Calif.

June 14

- 2571 ♂ juv. *Certhia* 10.0g.
Strawberry Canyon, Berkeley, Alameda Co., Calif.

July 22

- 2572 ♂ *Peromyscus* 212-108-23-21

- 2573 ♂ *Sorex* 117-47-14-8

- skeleton
2574 ♀ *Pipilo maculatus*

Lake Almanor, Plumas Co., Calif.

July 25

- 2575 ♂ juv. *Sphyrapicus varius*

- skeleton
2576 ♀ ad *Oberholseria* old brood patch; ovary small.

- skeleton
2577 ♂ juv. *Certhia*

- 2578 ♂ ad. *Hylocichla guttata*

Bald Peak, Contra Costa Co., Calif.

August 5

- 2579 ♂ im *Ammodramus* seeds, sm. insects
Savannarum 17.5g.

- 2580 ♀ im " " seeds, 1 grasshopper 17.6g.

- 2581 ♂ ad. " " large seeds and
" some insect parts 19.8g.

Whitaker's Forest, 5500ft., W Slope Redwood Mt., Tubare Co., Calif.

August 26

- 2582 ♀ (?) *Dendroica ingrescens*

- 2583 ♀ im " "

- 2584 ♀ ad " *auduboni*

- 2585 *Calypte anna*

Pinehurst, Fresno Co., Calif.

August 27

- 2586 ♂ *Phalaenoptilus* testes 4 mm.

Marshall, 1942

Catalog

Whitaker's Forest, 5500 ft., w slope Redwood Mt., Tulare Co., Calif.
August 28

2587 ♂ im *Certhia* testes 1 mm.

Big Meadow, 7600 ft., Sequoia Nat. Forest, Tulare Co., Calif.

August 29

2588 ♀ im *Calaveras Wren*

2589 ♀ im *Vermivora celata*

Buck Rock, 8200 ft., Sequoia Nat. Forest, Tulare Co., Calif.

2590 *Oberholseria chlorura* ♂ im

Big Meadow, 8000 ft., Sequoia Nat. Forest, Tulare Co., Calif.

2591 ♂ im *Empidonax hammondi*

2592 ♀ *Bubo virginianus* ^{1 Jerusalem Cuckoo} ovary small

Whitaker's Forest, 5500 ft., w slope Redwood Mt., Tulare Co., Calif.

August 30

2593 ♂ *Sphyrapicus varius*

2594 ♂ ad *Vireo solitarius*

2595 ♂ ad *Strix occidentalis* bill greenish-yellow
+ pellet from stomach

Fleischacker Zoo, San Francisco, Calif.

alcoholic 2596 body cavity fixed, at Bonin's left + Souse's
Secretary Bird died September 7 in captivity
received at Fleischacker from Cairo Zoo in 1932
was adult then

LaGrange, Stanislaus Co., Calif.

Sept 15

2597 ♂ ad *Empidonax traillii*

2598 ♀ im

2599 ♀ im *Baeolophus inornatus*

2600 im *Telmatorhynchus palustris*

2601 ♂ im *Gatherpes mexicanus*

2602 im *Dendroica aestiva morcomi*

Marshall, 1942

Catalog

La Grange, Stanislaus Co., Calif.

Sept 15

2603 ♂ ad *Pipilo fuscus*

2604 ♂ ad " "

2605 im *Melospiza lincolni gracilis*

Berkeley, Alameda Co., Calif.

Sept 19

2606 ♀ im *Melospiza m. santaecrucis*

skel.

2607 ♀

Sept. 25

→ im *Aimophila ruficeps ruficeps* coll by Walt Balquest
fresh H₂O marsh, mouth Walnut Cr., Contra Costa Co., Calif.

October 18

2608 ♂ ad *Melospiza melodia* (santaecrucis)

2609 ♀ ad " "

2610 ♀ ad " "

2611 ♀ ad " "

2612 ♀ ad " "

2613 ♀ im " "

2614 ♀ im " "

2615 ♀ im " "

2616 ♀ im " "

2617 ♀ im " "

salt marsh, Pinole, Contra Costa Co., Calif.

2618 ♂ ad *Melospiza melodia* (annuelis)

2619 ♂ ad " "

2620 ♂ ad " "

2621 ♂ im " "

2622 ♂ im " "

Marshall, 1942

Catalog

salt marsh, Pinole, Contra Costa Co., Calif.

October 18

2623 ♂ im *Melospiza melodia*

Sebastopol, Sonoma Co., Calif.

2624 ♂ ad *Melospiza melodia gouldii*

2625 [♂?] im " " "

2626 ♀ im " " "

2627 ♀ im " " "

Berkeley Aquatic Park, Berkeley, California

October 23

2628 ♀ im *Melospiza melodia pusillula* washed with soap & gasoline

Golden Gate Park, San Francisco, Calif.

November 7

2629 ♂ im *Oporornis tolmiei*

coll. with aid of Frank A. Pitelka . not much fat

